...tion Library

September 1958

SCHOOL MANAGEMENT

PRACTICAL SOLUTIONS TO SCHOOL MANAGEMENT PROBLEMS

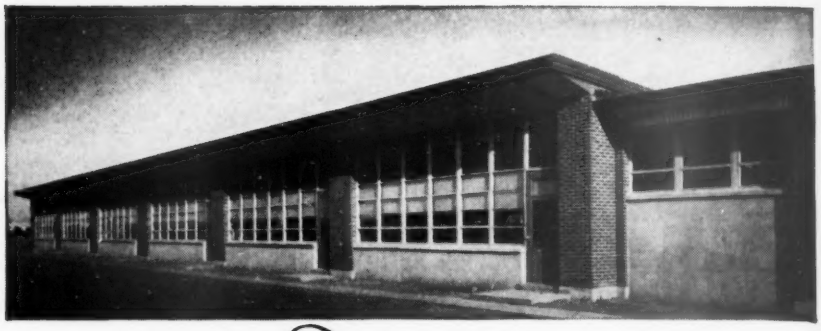
How to select and budget for Text-books

How you can compare SCHOOL BUILDING COSTS

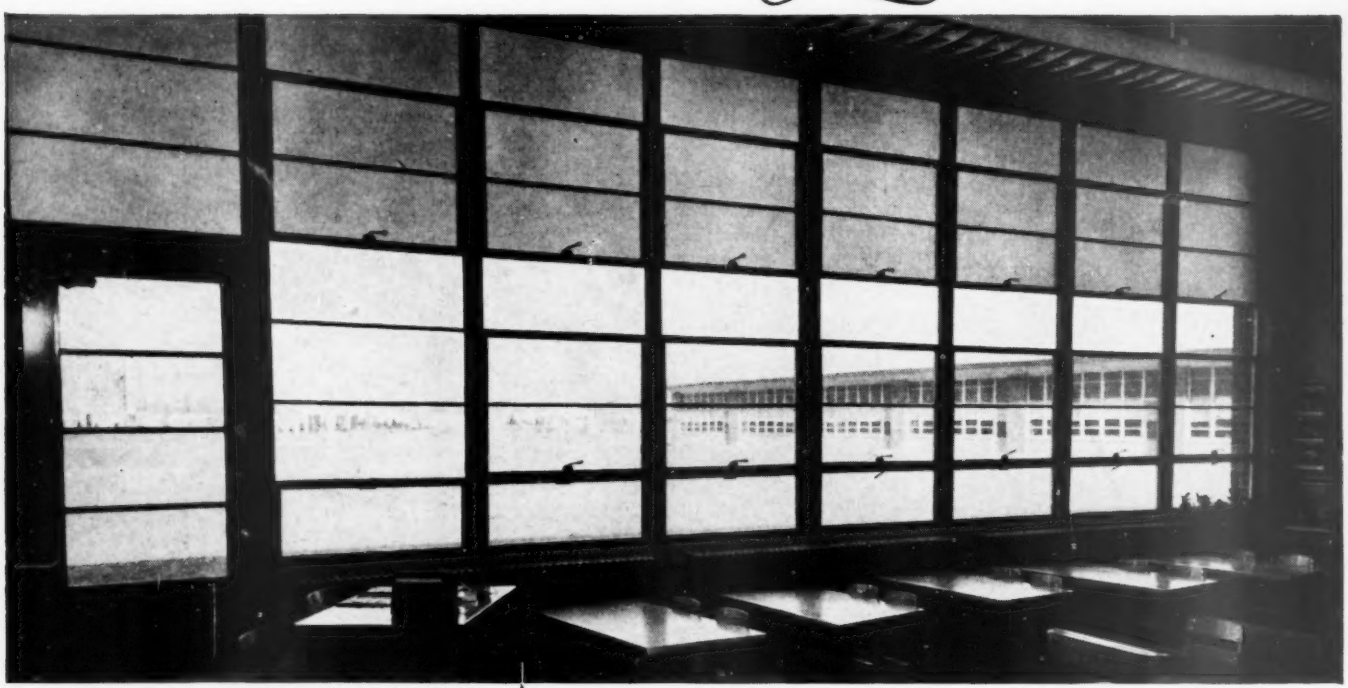
A do-it-yourself formula for rating the cost of a school

SEE COMPLETE CONTENTS ON PAGE 3

coolite glass . . .



architect's choice for better *Daylighting*



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Glazing: Pittsburg Plate Glass Co., Louisville, Ky.

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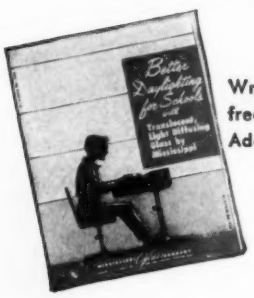

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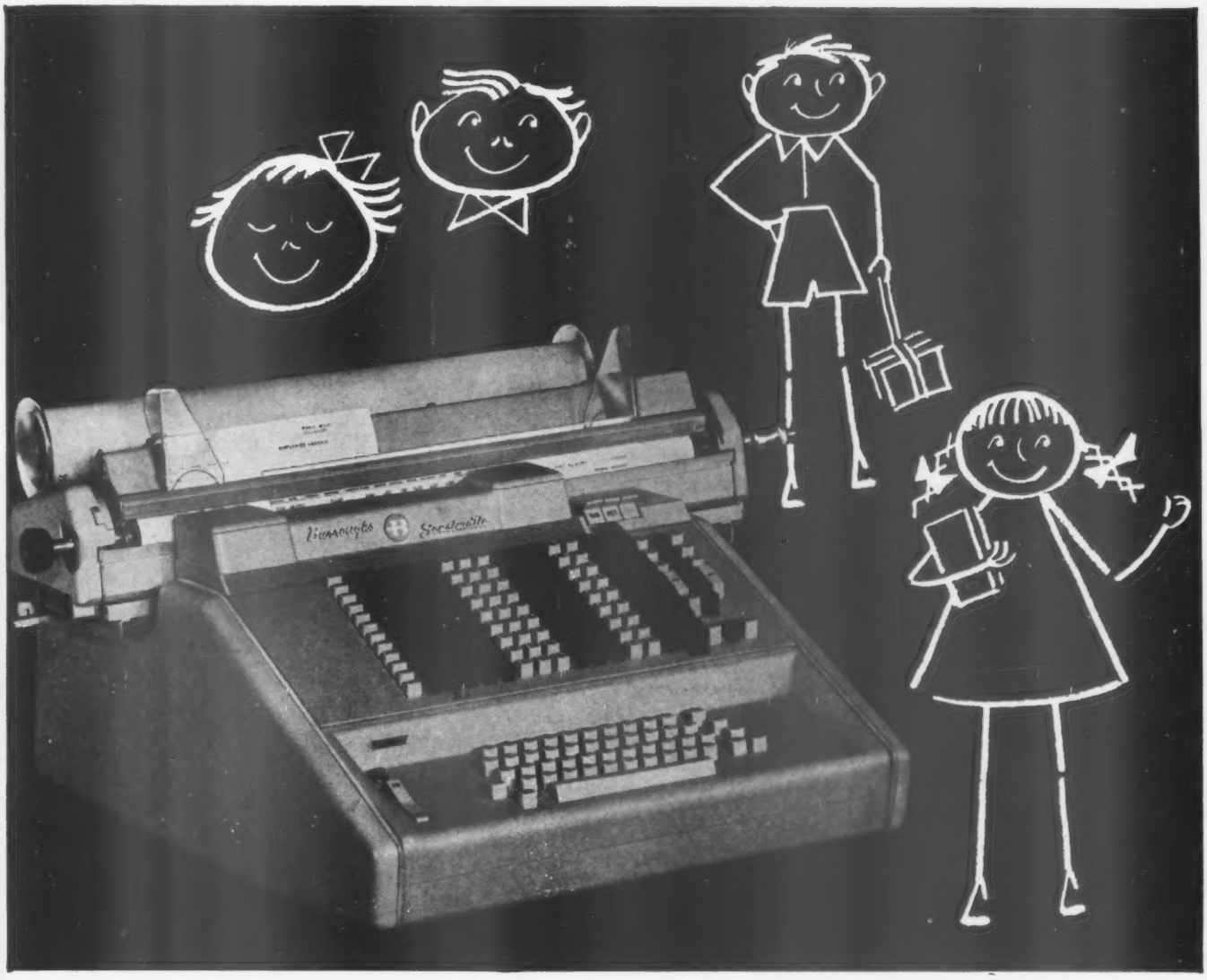

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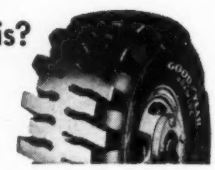

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Vol. 2 No. 9

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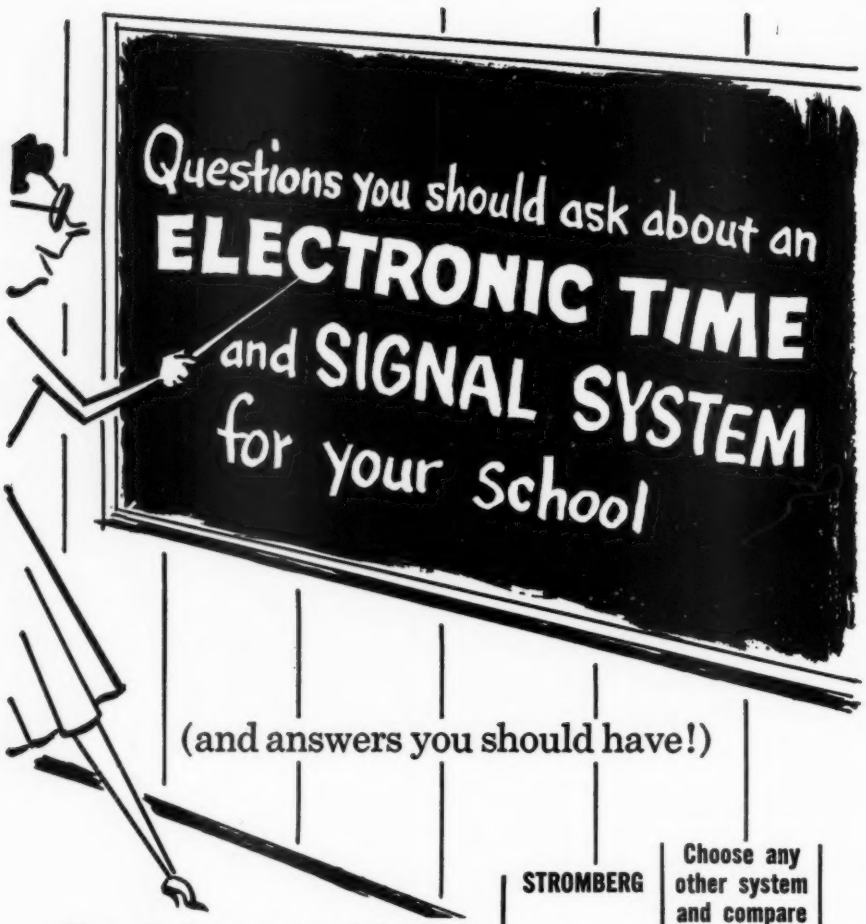

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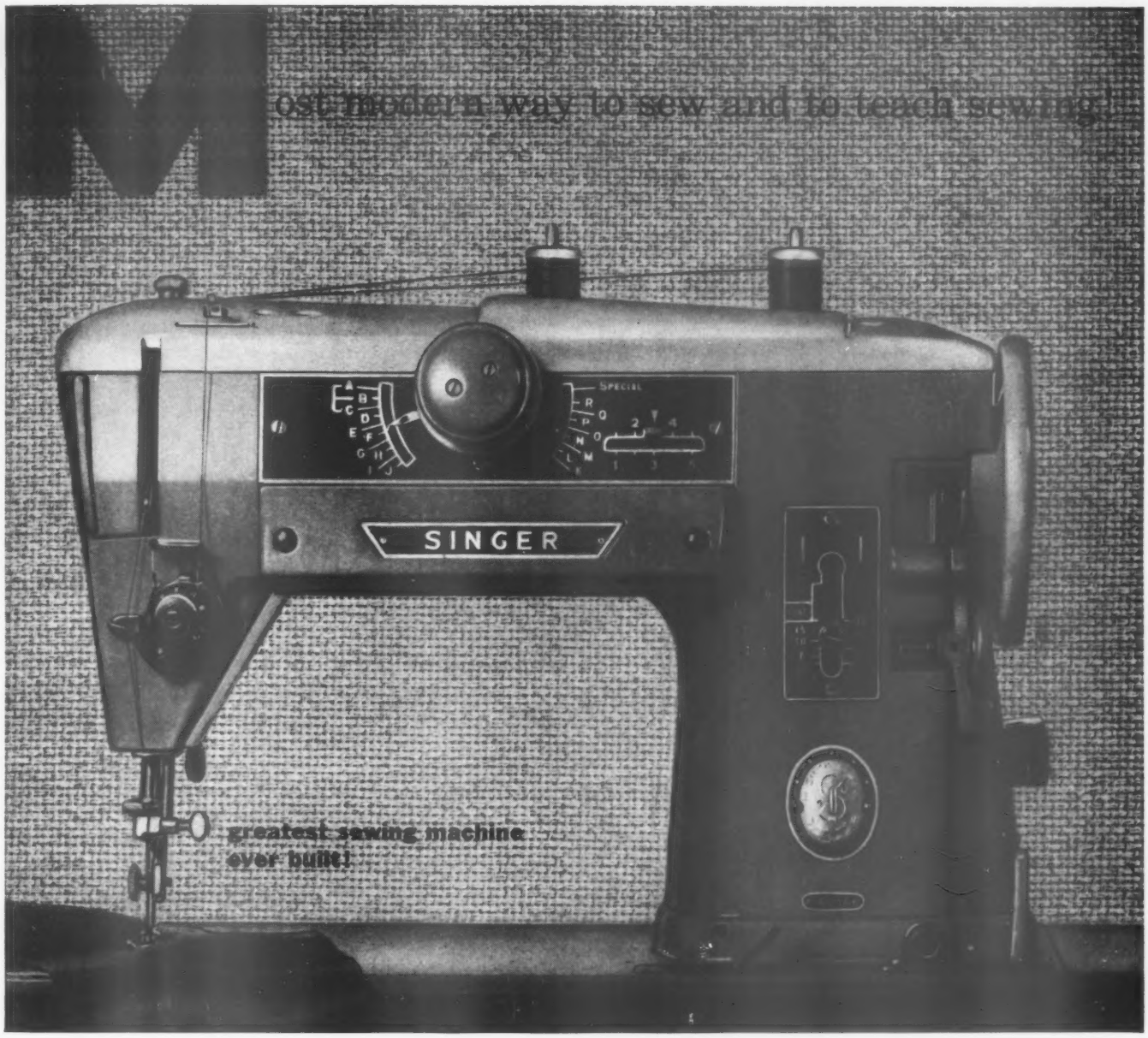
Include old address as it appeared on previous issues (if possible send label from magazine). Do not depend on the post office to forward either the change of address or your magazines.



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More than 40,000,000 women are sewing creatively these days! This increased interest in home sewing has added to the importance of *teaching* this lifetime skill . . . teaching it the most modern way.

That is why more and more schools are now investing in the SLANT-O-MATIC—the most modern automatic zigzag machine ever developed.

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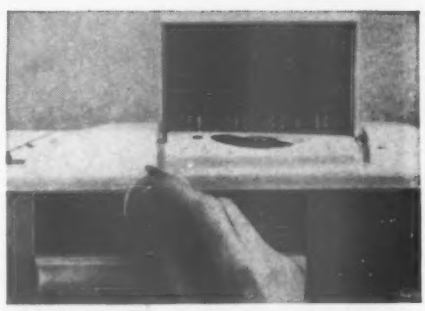

Stitch Chart flips up showing student **how to** "tune" knob for all the exquisite fancy stitch combinations. Easiest ever!

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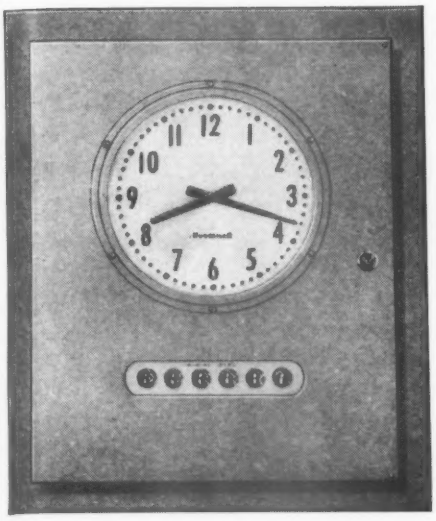

THE HONEYWELL CLOCKMASTER*

The Clockmaster, Honeywell's newest addition to its line of electrical systems for schools, represents another important step in Honeywell's overall program for schools. The program itself is based on Honeywell's thorough appreciation of schools' operational needs and is primarily designed to permit better education by providing the finest control facilities in school plants.

Now with the Honeywell systems shown on this page, your school gets the special benefits that only Honeywell can give: 1) your school management benefits from simplified operational functions; 2) your student body benefits from a better, more flexible learning environment; and 3) your taxpayers benefit from the performance and durability of quality products tailored to fit your school's particular needs. In addition Honeywell offers the most comprehensive maintenance program in the industry—periodic inspections, emergency service and the replacement of worn equipment. For more complete details on any of Honeywell's electrical systems for schools, call your local Honeywell office or write Minneapolis-Honeywell, Dept. SM-9-133, Minneapolis 8, Minnesota.

Honeywell Clockmaster Systems

- Provide handsome clocks in 9″, 12″, 15″ or 18″ dials, flush or surface mounted.
- Easy installation—standard plug-and-socket connections. No soldering.
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- Optional spring-reserve power unit. Keeps master clock running during power failure.
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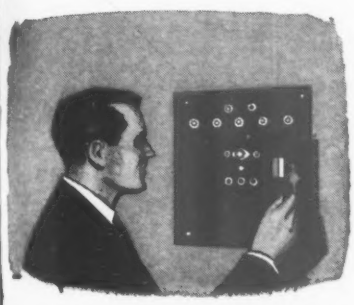

Honeywell Fire Detection and Alarm System

- Locates fire by numbered light.
- Reports fires automatically both within building and to local fire station.
- Transmits alarms even with ground or break in detection circuit.
- Operates on stand-by battery in case of power failure.
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- Tests prove savings as high as 80% on lighting bills.
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- Honeywell helps with application and installation.
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A special quality of CLEAN-O-LITE is the fact that it deposits no visible film or scum. It will not build up, or discolor floor or finish. Cuts labor time—it requires no rinse. Saves material cost—it cleans and sanitizes effectively in a one-to-forty solution. This is welcome news for the maintenance budget!

ASK YOUR HILLYARD "MAINTAINEER®" to help you draw up a comprehensive maintenance program covering all floors. His suggestions can lead to heightened floor appearance and wearability—and to lowered maintenance costs. No charge or obligation; he's *"On Your Staff, Not Your Payroll"*

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HELP THE SCHOOL BOARD

SIR: I have read "Streamlining Board Meetings" in the May issue of SCHOOL MANAGEMENT, and find it to be an excellent presentation of this subject. I think Dr. Salmon could have added the values to be derived from mailing to each board member immediately following each meeting a copy of the minutes of the previous meeting. This is often done when sending the agenda for the next scheduled meeting. Another report which I found to be of extreme value to my board members was a monthly financial statement which showed a complete budget.

W. A. SHANNON
EXECUTIVE DIRECTOR
NATIONAL SCHOOL BOARDS ASSOC.
CHICAGO, ILL.

NEWTON QUESTIONS

SIR: With reference to "The questions behind the Newton Plan" (*SM, July* '58), it was my good fortune to attend two of the panel discussions in which Dr. Gores participated at the National School Boards Convention held at Miami Beach this last April.

In my estimation his contributions were the high-light of the convention. His ideas were stimulating and provocative. His plans could well be the answer to many professional objections to teacher merit rating.

Possible answers to your questions may be found in a book "High Schools Today And Tomorrow," co-authored by Dr. Charles Bursch and John Lyon Reid.

I find your editorial comments stimulating and interesting.

EVAN W. DAVIES
BOARD OF TRUSTEES
AMERICAN RIVER JR. COLLEGE
DEL PASO HEIGHTS, CALIF.

INSURANCE CORRECTION

SIR: In your magazine you carried an article written by Mr. Donald E. Gavit, business manager of Hammond, Ind., Public Schools (*SM, July '58*), concerning student protection insurance. He had indicated that the American Casualty Co. was one of the carriers who writes this type of insurance.

We no longer write this coverage and would appreciate it if you would so inform your readers. This will save needless correspondence from school officials inquiring about our plan.

Thank you very much for handling this.

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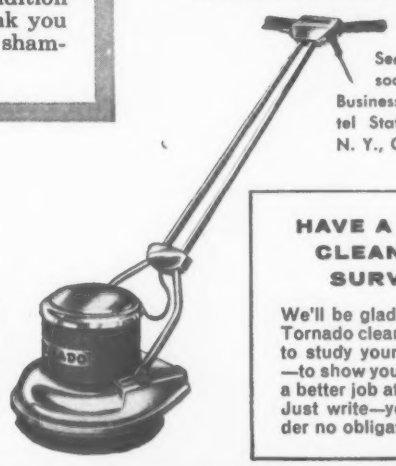

See us at the Association of School Business Officials, Hotel Statler, New York, N. Y., October 5-9.

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"Light Heavyweight"
FLOOR MACHINE

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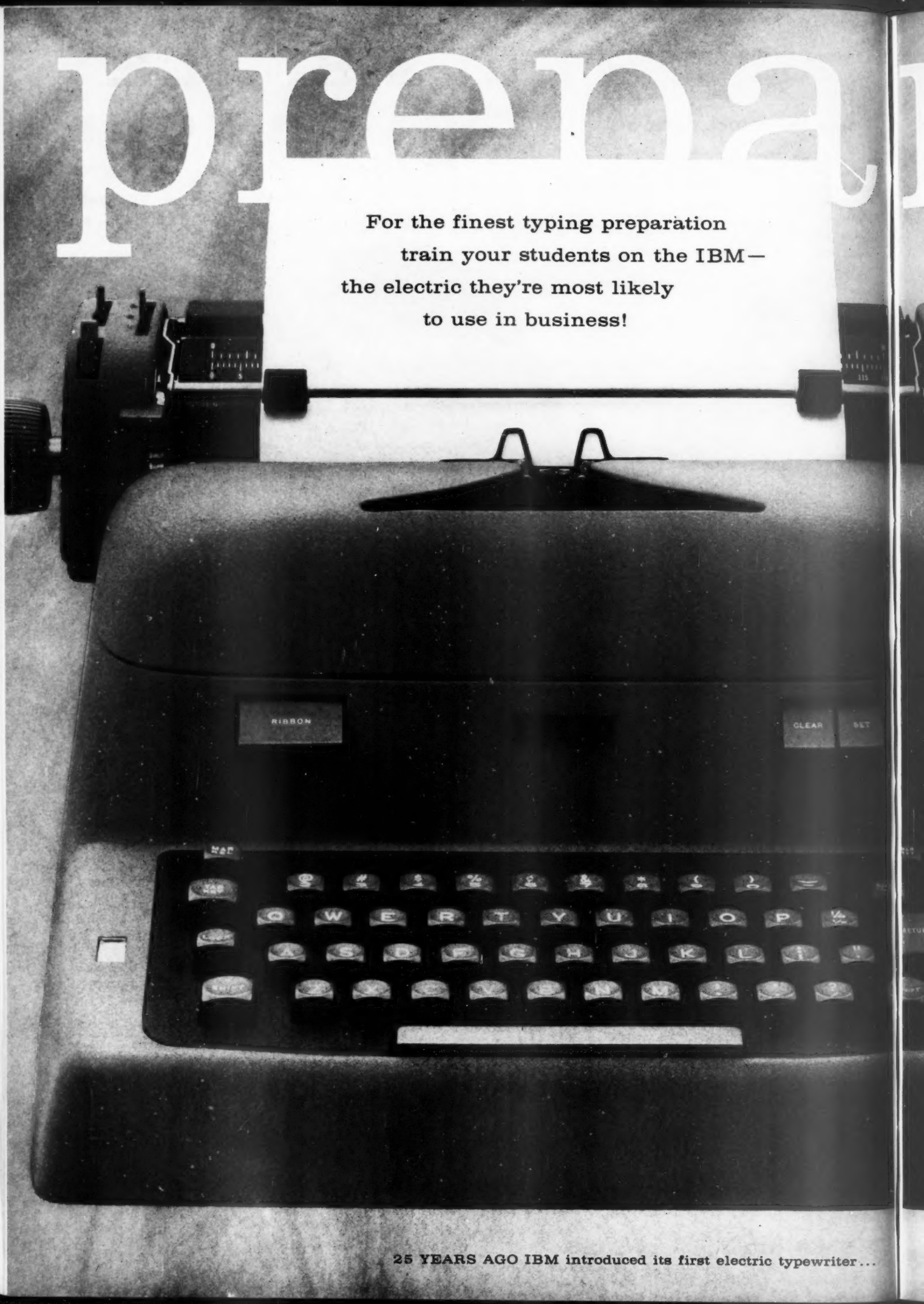

25 YEARS AGO IBM introduced its first electric typewriter...

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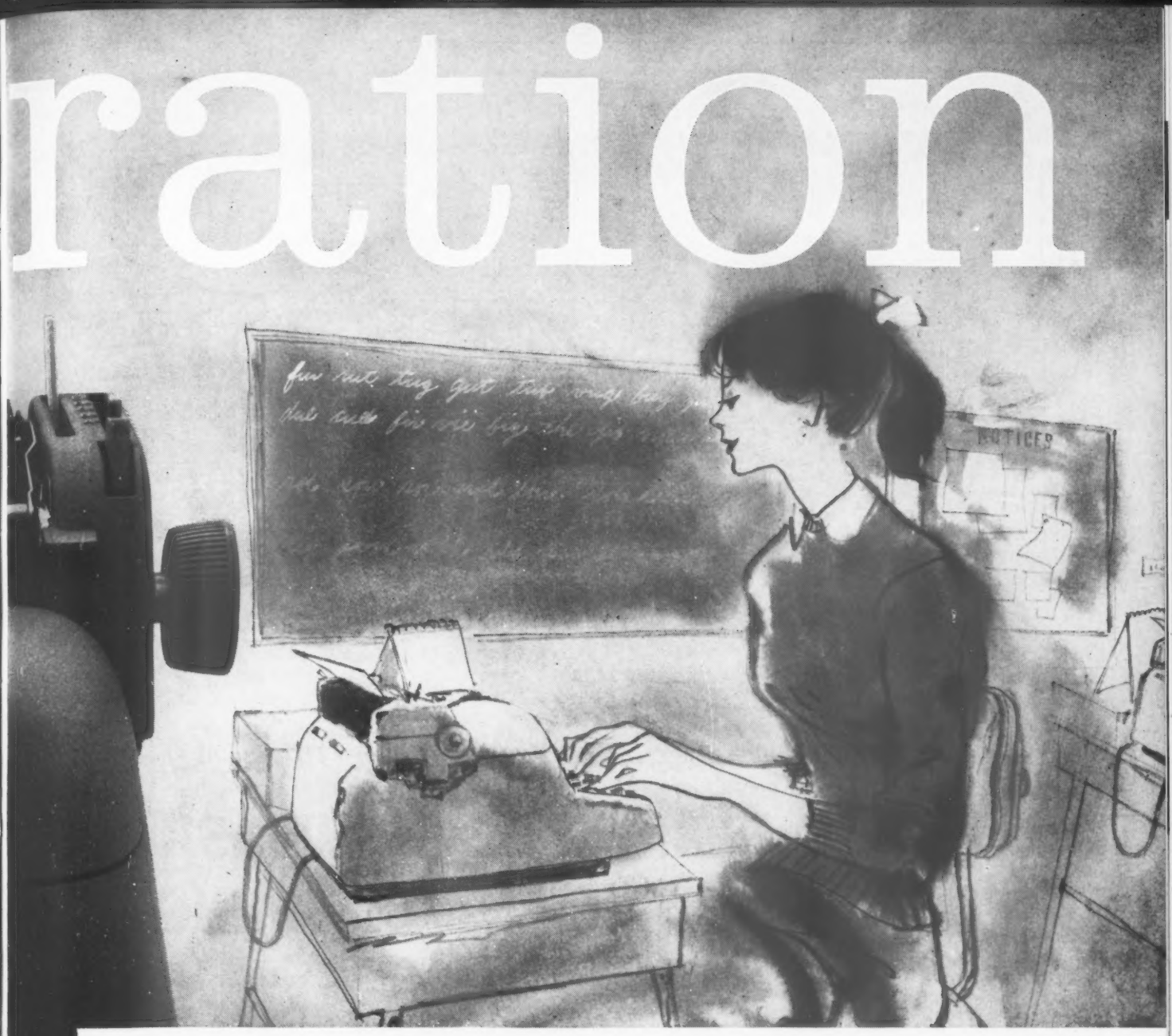

From classroom to office, the switch is to electrics—and IBM is the favorite by far!

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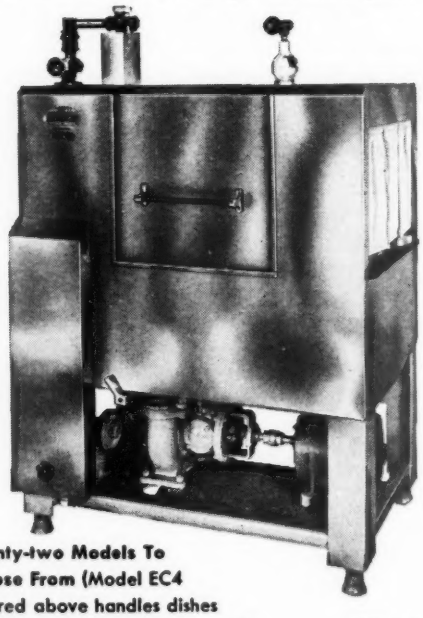
Recommended for establishments feeding from 50 to 1200 persons per meal

Keeping abreast with the fast, modern-day pace is important to all feeding establishments . . . from the corner restaurant to the large hospital. A Blakeslee Automatic Dishwashing Machine can play a vital role in economically increasing the efficiency of your operation, too.

A Blakeslee Dishwasher is the cost-cutting answer for providing an adequate supply of sparkling and sanitary china and glassware . . . even during peak rush hours.

Think of the time and labor savings! You just place your soiled dishes in a rack—place the rack on the automatic conveyor—dishes pass through a powerful wash—through a thorough rinse—and in only a matter of seconds are ready for use again.

For the dishwasher best suited for your particular operation, a Blakeslee Sales-engineer will make sound, money-saving recommendations.



Twenty-two Models To Choose From (Model EC4 pictured above handles dishes from 50 to 400 persons per meal)

DEPT.-114-B

G. S. BLAKESLEE & CO. 1844 S. Laramie Ave., Chicago 50, Ill.
NEW YORK • LOS ANGELES • TORONTO

(Circle number 704 for more information)

Basic information that schoolmen can use as a part of community education program

EASY TEAR OUT

Why your students should go into teaching

■ ■ ■ NOT SINCE THE DAYS of the depression has teaching held greater rewards for the young person seeking a profession.

Unfortunately, the "bad press" that teaching has received in recent years has yet to be overcome.

Consider these facts:

Seller's Market

Today's teacher shortage is acute (*see charts*), and is almost certain to continue well into the 1960's. Teacher demand is geared to pupil enrollment. Owing to the high birth rates since World War II, enrollments in kindergarten and grades one through eight will continue to rise in the near future.

Cheaper education

Since most teachers colleges are subsidized by state governments, they offer an attractive entry to college for high school graduates who are priced out of other colleges and universities by tuition costs.

Professional status

Few areas of employment open to women can promise as much in salary and prestige. Moreover, recent public awareness of the critical importance of education is leading to a whole new concept of the position and stature of the profession.

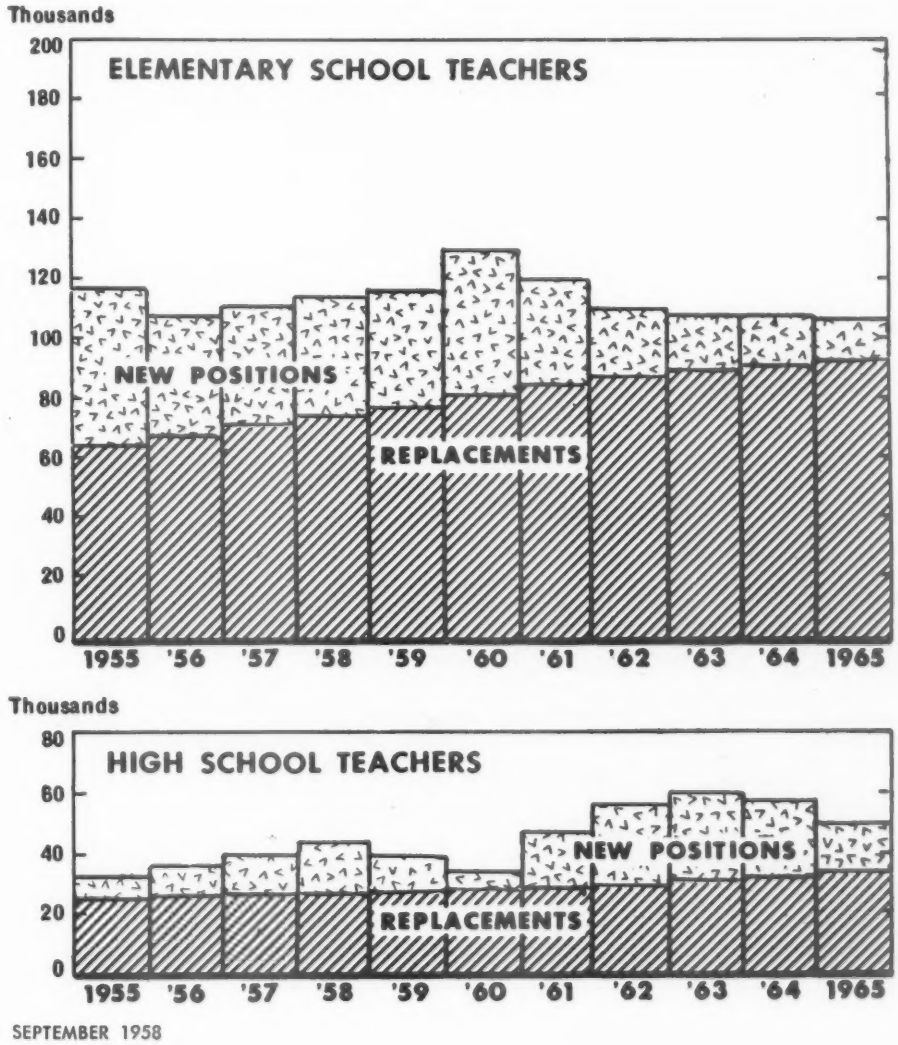
In spite of the fact that teaching has been a "depressed" profession until recently, teachers' morale runs high. The NEA did a broad survey about a year or so ago in which they asked teachers to reflect their attitudes about their jobs.

Salaries improving

Teachers are still far from being overpaid. But the pattern is one of improvement. The estimated average annual salary for all classroom teachers in elementary schools was $3,800 in 1955-56, and $4,350 for those in secondary schools. Teachers' salaries are usually lower in rural schools than in large cities, so these average figures are not truly reflective of opportunity. Starting salaries of $4,000 for new teachers are not uncommon in large cities and the suburbs that surround them.

The majority of men and women teachers expressed the feeling that if they had it to do over again they would prepare for the teaching profession. On the distaff side, 80.7% reported they would choose again to teach.

It is interesting to conjecture how many men and women in other kinds of work would reflect as high a score on "job satisfaction." **End**



From Aircraft Domes t

PLEXIGLAS

The first "dome skylights" were pilots' enclosures and navigators' astrodomes on military aircraft. These enclosures were, and still are, made of PLEXIGLAS acrylic plastic.

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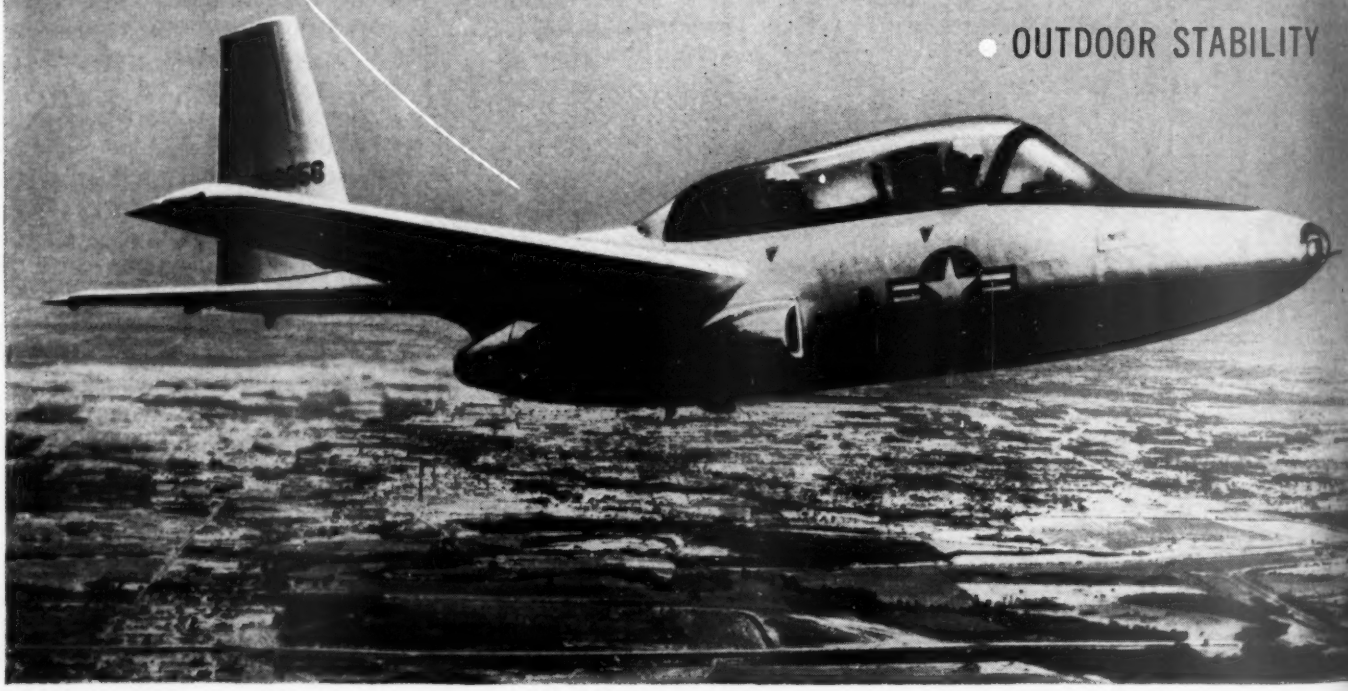

to Skylight Domes...

This superiority has been demonstrated at the Rohm & Haas Daylight Laboratory, using standard Illuminating Engineering Society tests and special procedures developed in consultation with the American Society of Heating and Air Conditioning Engineers. Any of the dome skylight manufacturers listed at the right will be glad to go over the test results with you in detail.

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DENVER, Colorado
Plasticrafts, Inc.
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HOUSTON, Texas
Plasteco, Inc.
2102 69th St.

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Southwestern Plastics Co.
Live Oak and Jefferson Sts.

PHILADELPHIA, Pennsylvania
Bohem Mfg. Co., Inc.
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PORTLAND, Oregon
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Plastic Engineering Co. of Tulsa
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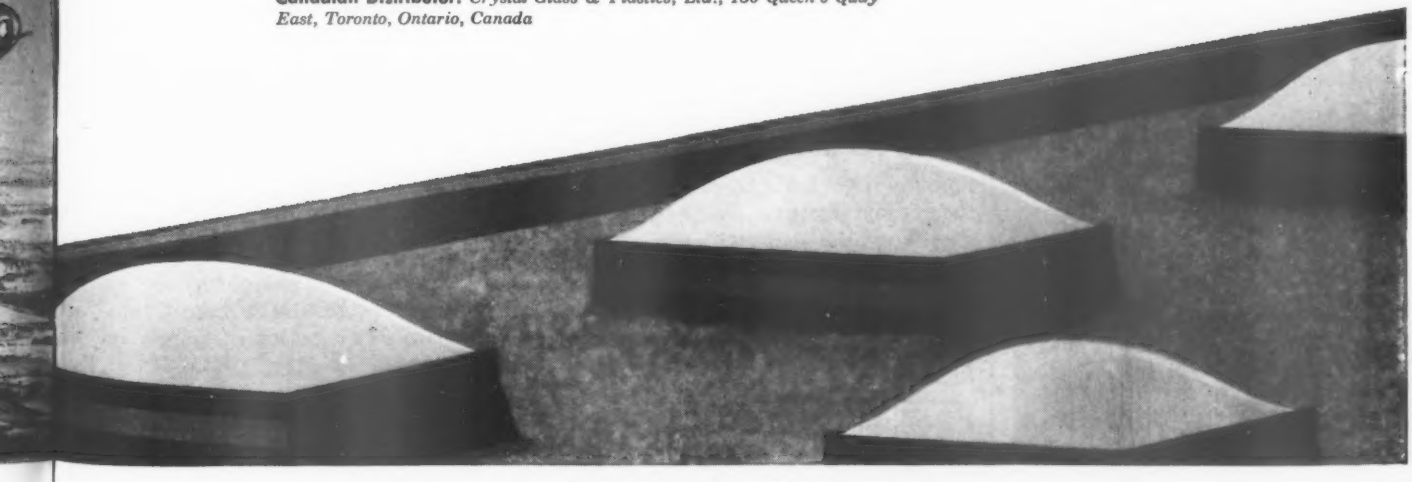

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WHERE TO GET HELP

A guide to useful information

CURRICULUM

Math Teaching. A new report on and analysis of the research undertaken in the field of mathematics instruction during 1955 and 1956. Published as a guide to educators, this booklet lists 123 research studies completed during that two year period. Information on each study includes the researcher's name, a statement of the problem under investigation, and a summary of the major findings and conclusions.

A summary of the research projects, together with an analysis of their content is also included. About half the studies were devoted to teaching methods and half to content. Twenty projects were concerned with prognosis and evaluation; the rest, with a variety of other aspects of mathematics instruction. Classified by grade levels, overlapping appears: 40 studies pertain to the college level; 60 to the high school level, and 40 to the elementary grades.

AN ANALYSIS OF RESEARCH IN THE TEACHING OF MATHEMATICS: *1955 and 1956. By Kenneth E. Brown. Published by the U.S. Dept. of Health, Education and Welfare, Government Printing Office, Washington, 25, D. C.*

Foreign Language Teaching. This 46-page booklet investigates the practical problems as well as the cultural advantages of foreign language instruction in the elementary grades. It offers a summarization and analysis of the thinking, practices and research in this field. The authors show what is being done and recommend ways in which language can enrich the curriculum without the introduction of a special subject. The recommendations provide a ready curriculum guide for anyone dealing with foreign language teaching.

FOREIGN LANGUAGE TEACHING IN ELEMENTARY SCHOOLS. *By Elizabeth Engle Thompson and Arthur E. Hamalainen. Published by the Association for Supervision and Curriculum Development, National Education Association, 1201 16th St., N. W., Washington 6, D. C. $1.*

Curriculum Guides. A 34-page booklet listing curriculum guides and instructional material currently available. Included is data on films, filmstrips and radio and television series. The listed publications will be helpful in the study of local curricular problems.

RECENT CURRICULUM MATERIALS. *Published by the Association for Supervision and Curriculum Development, National Education Association, 1201 16th St., N. W., Washington 6, D. C. 75¢.*

Developmental Reading. One in a series of curriculum guides for teaching the basic skills, issued by the Springfield, Mo., Public Schools. Sections of the manual outline a basic philosophy on reading instruction, materials needed in the reading program, curricular reading, recreational reading, news reading, differentiation of instruction in reading, directed reading instruction and evaluation in the reading program, and 22 full-page illustrations show various steps in the reading instruction program in Springfield. This guide would be an excellent supplemental reference book for schoolmen particularly interested in the reading problem.

DEVELOPMENTAL READING IN THE CURRICULUM. *Bulletin No. 1, Springfield, Mo., Public Schools. Order from Robert C. Glazier, Director, Public Information and Publications, Springfield Public Schools, 940 North Jefferson, Springfield 2, Missouri. $2.*

FILMS

Overcrowding. With 34 million school children heading back to school this month, the National Education Association is telling the story of overcrowded classrooms via the TV premiere of its new film, "Crowded Out."

Most of the nation's TV stations are scheduling showings of the new film during the week of September 12-18. "Crowded Out" the story of what happens to children and teachers in overcrowded classrooms, is the eighth film in the NEA-State Education Association series of public relations films.

CROWDED OUT, *produced by the National Education Association, 1201 16th St., N.W. Washington, D. C.*

Spandrels of Blue Ridge Huetex create unusual color contrast with red brick. Huetex provides the enduring beauty of glass-protected color while its aluminum backing cuts heat gain in summer, heat loss in winter. Western Los Angeles Air Reserve Center. ARCHITECT: Maurice H. Fleishman, Los Angeles, Cal.

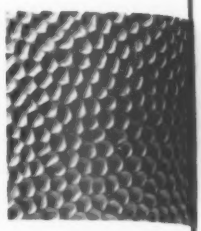
Creating beauty like this takes less money than imagination . . . with Blue Ridge Glass

Be as cost-conscious as you have to be, as imaginative as you *want* to be. You can do it . . . with Blue Ridge glass. With glass panels of ever-brilliant color . . . with a glass roof that filters out the sun's heat yet keeps the cool blue-green look of the outdoors. Here are illustrated interiors that have come alive with new sparkle, new play of light and shadow. This is the luxury of beauty and the practicality of low installation and maintenance costs, high insulation value and weather resistance . . . Blue Ridge glass is a true designer's medium.

COLOR. In the Air Reserve Center above, Architect Fleishman chose Blue Ridge *Huetex*® for his spandrels. Rich, colorful ceramic enamel is fused to the back of the tempered, textured glass then protected by a coating of atomized aluminum. With this glass facing the architect knows that the beauty of the color in this building is permanent.

by T. W. Glynn
Director of Product Development
Blue Ridge Glass

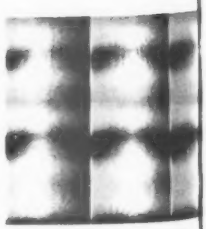
A dramatic band shell in St. Petersburg, Fla., wired blue-green AKLO glass. Its roof defies elements, requires minimum maintenance and is usually beautiful in the park surroundings. ARCHITECT: William B. Harvard, St. Petersburg, Fla.



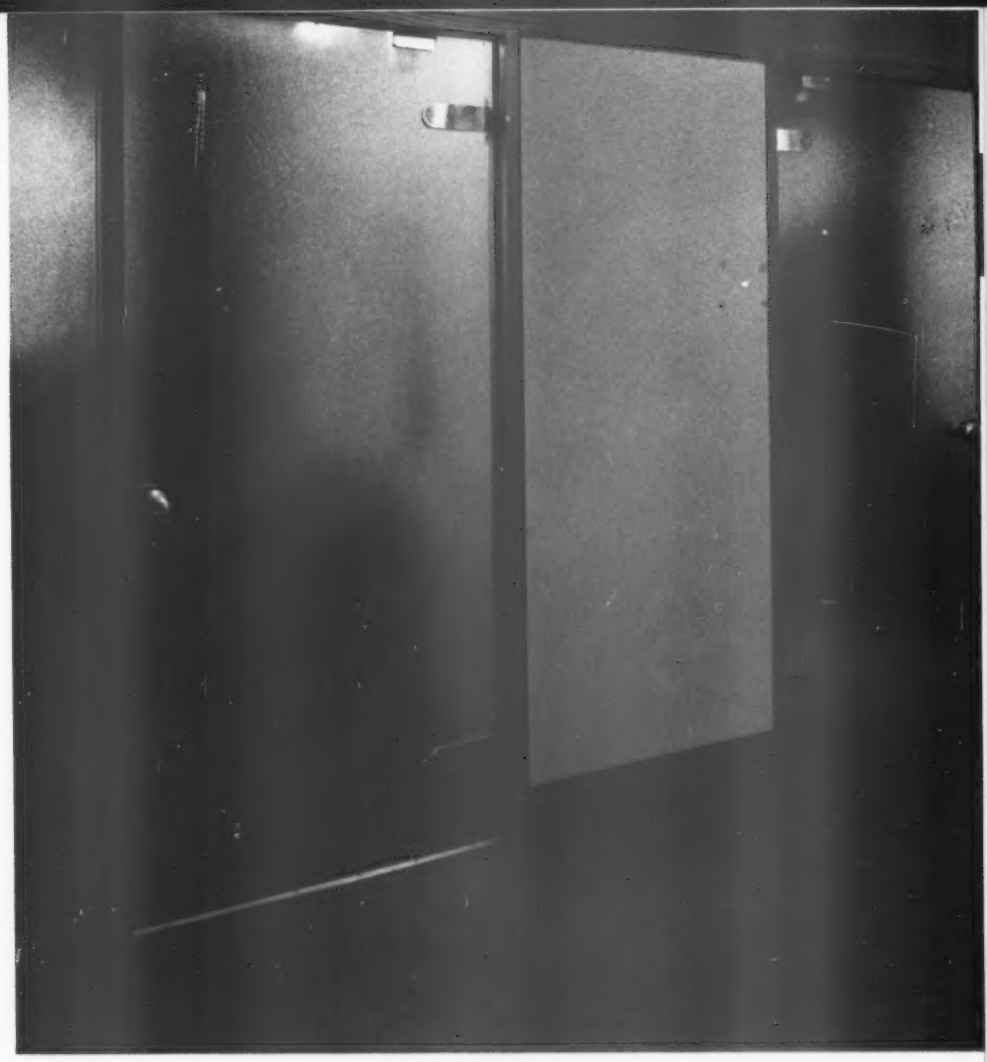
AKLO
to control
light and heat

Blue Ridge is a designer's medium ..

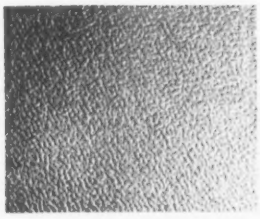
Daylight from this windowed corridor can enter the classroom through Doublex panels. Yet, the students within are not disturbed by movements in the hall. St. Francis Xavier School, Wilmette, Illinois. ARCHITECT: Belli & Belli, Chicago, Ill.



in DOUBLEX, light dan



The bright colors of the room furniture are warmly diffused through these Securit Doors and matching Muralex wall panels. The look is smart and modern, the feeling is private but not confined. Titus Fisher Hospital, Norwalk, Ohio. ARCHITECT: H. E. Beyster & Associates, Detroit, Mich.



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...to achieve distinctive effects

With its refreshingly different band shell, shown above, left, St. Petersburg, Florida, expresses its theme "The Sunshine City" in a most appealing way. The low eaves give ample protection and provide the necessary acoustical properties. The blue-green glass and steel roof retain the fresh, outdoors feeling. The roof is AKLO* ¼" wired glass, with exposed steel painted to match.

MAINTENANCE. Exterior glass facing requires absolute minimum care . . . the colors are permanent, the surface is impervious to the ravages of weather, sun and corrosive moistures that may hang heavy in industrial areas. Interior glass treatments require only occasional washing.

LIGHT AND PRIVACY . . . a combination you achieve so easily with Blue Ridge *Patterned Glass*. Maximum use of daylight is attained while you screen unwanted views or partition offices and rooms. The *Doublex*® patterned glass used in the schoolroom walls, at left, provides bilateral lighting without disturbing room privacy.

FLEXIBILITY AND INSTALLATION. The Blue Ridge *Securit*® Interior Glass Doors with matching wall panels of *Muralex*® patterned glass, shown above, are easily installed. Entire walls can be glazed as simply as windows, or louvered for ventilation. Both exterior and interior glass treatments can be tailored to fit *any* architectural theme.

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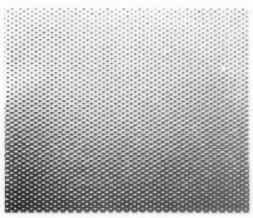
AKLO FINETEX

As sunlight streams through these windows and skylights, it becomes diffused daylight . . . perfect for young eyes. Energy-reducing glare and heat are screened out by *AKLO Finetex® Securit* windows. The gym looks bright, cool and comfortable. Gymnasium at Woodbridge High School, Woodbridge, N. J. ARCHITECT: Alex Merchant Associates, New Brunswick, N. J.

Reglazing with ¼" *Industrex®* wired glass and a single strip of polished wired glass subdued the bright sunlight in this high school shop. Windows were originally all clear, creating a glare problem. Shop is now cheerfully daylighted without straining working eyes. Essex County Vocational and Technical High School, Irvington, N. J. ARCHITECT: Epple & Seaman, Newark, N. J.

INDUSTREX



For additional information on Blue Ridge Glass, look in Sweet's Architectural Files 7a/Li, 3c/BL and 16d/BL. Also Sweet's Industrial Construction File 3f/Li, Light Construction File 1f/Li and Plant Engineering File 5b/BL.

BLUE RIDGE GLASS

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SM NEWS OF THE SCHOOLS

A digest of current happenings in public education

California districts look for new income

The five largest school districts in California have banded together to finance a survey to find new sources of school revenue. The purpose, according to Mrs. Georgiana Hardy, president of the Los Angeles board, is to give some relief to property owners who now bear most of the school finance burden.

The five districts involved in the project include Los Angeles, San Francisco, Oakland, Long Beach and San Diego. They are putting up a total of $65,000 to finance the project.

The survey will attempt to learn how much school costs can be expected to rise in the next 10 years, how much property owners can reasonably be expected to pay and what other sources of revenue may be available. In addition the possibility of changing the state's method of subsidizing local districts will be scrutinized and an attempt will be made to find the saturation point of all taxing plans and revenue sources.

The Stanford Research Institute of Menlo Park, Calif., has been hired to conduct the survey.

Teacher patents grade school desk

A talented Florida teacher has patented an interlocking desk designed especially for classroom use in the lower grades.

The desks, constructed by Elton L. Sapp of Lake Worth, Fla., are easily moved and can be locked into any formation desired in the classroom. They are light weight and rectangular, exactly twice as wide as deep.

The interlocking feature, so simple that second graders can operate it, is a key-like device which is pushed through a slot in the adjoining desks and then held in place by springs.

The desks give the room both flexibility and stability since they can be grouped or separated with relative ease. Teachers who experimented with the desks for a year found classes easier to group and also discovered that —because students retained their own desks—there was no vandalism such as carving initials in the desk tops.

Dartmouth scientists aid local schools

Nineteen public and private schools within 60 miles of Dartmouth College, Hanover, N. H., are sending their physics classes to monthly lecture-demonstrations provided by the college's physics department.

The program, which began last February, was the outgrowth of a conference at which secondary school teachers were asked how Dartmouth could help them in presenting science to their students. Noting the well-equipped college laboratory, several teachers inquired about the feasibility of monthly lectures.

The college professors agreed to give the plan a try. The first lecture was well received and the second drew an overflow audience that had to be divided into two sections. Up to 400 people have attended a single demonstration.

The college has appropriated no money for the lectures and professors work on their own time. Nevertheless, Dr. John Dewdney, who heads the Dartmouth end of the program, has reported no lack of volunteers.

The program has met with enthusiasm from the secondary school teachers. Faced with the problem of relatively meager budgets for science equipment, the teachers feel that their students have been better able to grasp material by observing equipment in action which they might otherwise have never seen.

Two interesting by-products have

Too good to miss . . .

Moral character . . . The Great Neck, N. Y. school board rejected bids from three transportation companies last month because it "wasn't convinced that persons of high moral character" would drive children to district schools. The companies have been asked to resubmit bids along with guarantees that drivers and supervisors "are of good quality."

School money . . . Forty-two percent of the real estate taxes collected in New York's Westchester County in 1956 was spent on public schools, a report issued by the county planning department showed. This is the latest year for which complete figures are available. The county has 52 school districts with better than 160,000 students. Altogether $45 million in real estate taxes were spent on the schools.

Construction money . . . In an effort to keep pace with increasing school enrollments, Los Angeles, the nation's second largest school district, spent more than $60 million on new school construction during the fiscal year ended July 1, 1958.

Youthful plight . . . A survey taken by the Cedar Rapids, Iowa, *Gazette* shows that most of the town's teen-agers spend more than half their time in unorganized activities, not connected with schools, churches or other community organizations. What are the chances of improving this situation? Not very good, if the same survey is to be believed. More than half the adults interviewed said they believe the programs now offered the teen-agers are sufficient for their needs.

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(Circle number 728 for more information)

come out of the sessions. Teachers have been brought up-to-date on new techniques and have received something of a refresher course on things they may have forgotten. And a new interest in physics has been awakened in the students. As one student put it, the material is fresher than when it's "taught by the same old teacher every day."

District seeks out talent among parents

School district surveys have become fairly routine of late, but in Harrison, N. Y., they have been given a new twist. There the district is surveying parents and friends of the schools to discover hidden talents.

According to Superintendent Louis M. Klein, every district has its share of talented people. "We in the schools are willing to do anything possible to help the children and we feel that their parents and friends are, too." The district sent out 1,250 questionnaires asking people to reveal their hobbies, talents and special positions and activities that might be of value to the schools. The questionnaire is to be returned if the recipient is willing to bring his knowledge or special resources to the schools.

A complete list of the volunteers and their offerings will be sent to each of Harrison's school principals this fall. They will then meet with department heads to plan on using any of the talents that would be profitable.

Response to the questionnaire has been gratifyingly heavy thus far, says Superintendent Klein. "It proves what many of us have felt all along—that there is a tremendous desire among the people of most communities to help their schools." Among the responses received so far have been an offer from the New Rochelle Tool Corp. to present an experimental show and opportunities to work with a UN member and a former drama specialist.

Schools close doors to fund-raising drives

Schools in Billings, Mont., will be closed this fall to any and all agencies that wish to use their facilities for fund-raising purposes.

Included among those denied access to teacher and student customers are such national campaigns as the March of Dimes and the American Junior Red Cross. Only those groups which sponsor school-related activities will be permitted to campaign for donations.

In defense of this policy, Alem L. LaBar, chairman of the board, said that it was simply a case of either denying all requests without exception—or approving them all. Of course, it was held, the latter action would have been impractical.

The board, however, did make one concession—the Family Welfare Service food drive held every Christmas will be announced in the schools. But, in keeping with its "if it's yes to one, it's yes to all" policy, the board said that the schools will not be used as collection points for the drive, as they have been in the past.

High school assembly honors top students

Portland, Me., last term started a pattern that seems to be catching on in a number of high schools around the nation. Students who had earned straight A's were honored at assemblies usually reserved only for athletic awards.

The scholars received traditional varsity letters, heard pep talks by their "coaches" and received the cheers and plaudits of their fellow students. Athletes were also honored, but they received second billing on the program.

A Portland publisher, impressed by the efforts to publicize and encourage academic achievement, printed 4,000 flyers describing the Portland program. The flyers are captioned "This Is What Our Town Did For Its Egg Heads—What Are You Doing?"

Town dentists band to save football teeth

Dentists in New Britain, Conn., for the past three years have been providing their services free-of-charge in making plates for members of New Britain's high school football team.

Under the plan, the dentists take molds of the players' teeth from which carefully-fitted plastic mouthpieces are made. The only cost for the work is $8 in laboratory fees. This expense is borne by the school's athletic department.

About 40 members of the team are

fitted each year. The boys are sent to their own dentists to have the work done. If they have no private dentist, the town's dental association supplies Coach Tony Apissa with the names of other dentists available to do the work.

The mouthpieces are permanent and are used by the boys through three years of varsity play. Many of the high schoolers outfitted the first year the plan went into effect are using the mouthpieces in college.

"We haven't lost a tooth in all the years we've used these mouthpieces," says Coach Apissa, "and we haven't lost a game to a Connecticut school, either. I don't know if there's any relationship, but I can tell you this—even if we lose a game, we won't stop using the mouthpieces."

Apissa reports that a number of other Connecticut schools have inquired about the dental plan and are contacting dentists in their areas to see if similar arrangements can be worked out.

Deferred scholarships to spur diligence

Calgary, Canada, school board members have come up with an idea that they hope will spur academic progress. They are planning to award $100 deferred scholarships to honor graduates of the city's junior high schools. The scholarships would be useable at any Canadian college.

Under the plan, the scholarships will be held in abeyance for three years, until the winners complete high school. It is felt that with this incentive, students may try harder to equip themselves for college.

The board expects to award approximately 150 scholarships each year.

All the world is a classroom

"All the world's a stage," wrote Shakespeare. Now two schools in New York have paraphrased that to "all the world's a school."

Take the case of Michael Esmay, a senior at Nyack, N. Y., high school. Michael spent his entire junior year on a boat surveying the seas as part of the International Geophysical Year.

He is a full-fledged crewman on the "Vema," a research ship outfitted by Columbia University's Lamont Geological Laboratories. The high schooler's job on the ship is to operate a submarine camera that can be lowered to any ocean depth. His underwater photographs have revealed a number of important discoveries that may lead to an explanation of the motion of water at the ocean bottom.

When he returns to solid land this month, he will take regular junior tests in English, history, math, chemistry and German. He has been studying the subjects by himself in his spare time on the job. If, as is expected, he successfully passes the tests, he will join his old classmates as a senior.

Nyack Principal A. W. Rittershausen, who approved the trip, explained "Michael is with scientists and learned people from whom he'll learn a great deal. . . . This kind of a thing is right in line with giving fellows who are able the challenge to go ahead."

Said Dr. Maurice Ewing, director of the expedition, "I salute the segment of the public school system that had the gumption to let him go for his entire junior year. I wish to goodness someone would have given me that chance when I was young."

Meanwhile in Roslyn, N. Y., a less extensive, but equally exciting, op-

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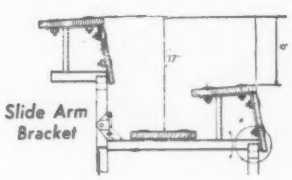

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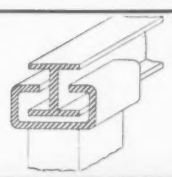
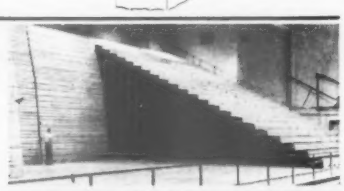
Original members are made of "I" beam structural steel and easily float above vertical support members — an engineering feature that utilizes the natural flex to steel in lieu of springs, linkage, other retractable or moving parts . . . assures you almost perpetual maintenance-free bleacher.



1st 24 ROW INSTALLATION

The world's largest installation at Vancouver, Washington, illustrated here, shows the massive setup that safely provides spectators seating — when folded, permits use of floor for other activities.



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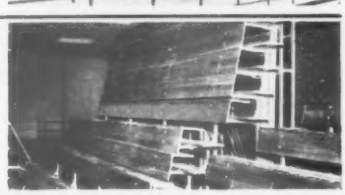

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(Circle number 702 for more information)

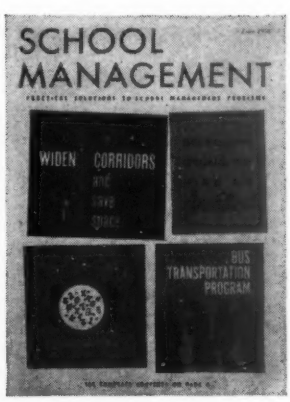
"Thank you for your service to persons in authority in our school system . . . Board members have handed copies of SCHOOL MANAGEMENT to me. It is an excellent publication."

KENNETH S. HAMMER
Superintendent, Morris, Ill.

MANAGING A SCHOOL DISTRICT IS A TEAM OPERATION

and nobody knows it better than the men and women who read **SCHOOL MANAGEMENT.**

It's why, whenever you see a good school system, you see a school board, an administrator and community leaders working in close harmony. It's also why **SCHOOL MANAGEMENT** devotes so much of its effort toward establishing a common language for *all* members of the school team.



portunity to study the world is being offered junior high school students. Under the auspices of Biology Teacher William Alexander, groups of children are studying marine biology by going down to the waterfront and obtaining their own specimens.

Armed with garden trowels and old nylon stockings for nets, the students comb crannies, rocks, mud flats and sand looking for crustaceans. "When you open a clam in front of children," Alexander says, "they want to know how it eats, where the heart is, if it has gills."

The specimens are taken back to the school laboratory for further study under a microscope. "This is the kind of study they can continue all their lives," Alexander points out. "All they need is an old mayonnaise jar and a little motivation." At Roslyn, they're being given the motivation.

Endowment honors excellence in teaching

The Taft School, Watertown, Conn., has received a unique $75,000 endowment from Mrs. John Ward Mailliard, Jr., the widow of a school alumnus. The endowment provides approximately $3,000 annually to reward excellence in teaching.

One, two or three Mailliard Fellowships of $1,000 each will be awarded annually to Taft faculty members "in recognition of teaching excellence either in or out of the classroom." A committee of trustees will select the recipients.

Townspeople help to cut school costs

The little town of Dalton, N. H., is showing the way for other small school districts across the country, strapped for needed construction money. In Dalton taxpayers are literally building their own school to house the town's 75 grade school pupils.

Dalton, a farming community located on the Connecticut River, has been sending its upper grade students to a neighboring high school on a tuition basis. But, since 1944, lower grade students have been housed in the town hall.

Conditions there were far from ideal. The building was poorly heated and unsanitary and recently it had become structurally unsafe. In the 1957 town meeting it was decided to raise and appropriate $2,500 as a capital reserve fund for a new school building project.

The townspeople then voted a $74,000 appropriation and obtained special approval of the state tax commission to go over their 4% bond limit. To save some money, the location of the old city pound was selected for the new school building.

The big saving came, however, in preparing the land. Volunteers with hand tools and bulldozers moved in on the property and prepared it for construction work. Now the school itself is under way and is scheduled for completion in late November.

The new building will be modest but adequate to the community's needs. It will have three classrooms, a commonroom-auditorium with kitchen facilities and a combination teachers' and health room. Adequate storage area is also provided. The building is of steel and brick construction.

Bus fare increases hit by school board

Increases in student fares recently imposed by the Cleveland Transit System have been withdrawn as a result of protests by members of the city's board of education.

The transit board voted to abolish the $1 pass sold to about 25,000 students each week. In its place an identification card costing $1 per semester was to be substituted; the student would have to pay 10¢ per ride plus three cents for a transfer if more than one vehicle were needed for his trip.

In an extreme case—that of a pupil coming home for lunch and using more than one bus—this would have cost $2.60 per week compared with the old rate of $1.

School board members in protesting pointed out that the school system does much of the detail work in handling student passes. Homeroom teachers buy passes from the school clerk-treasurer and resell them to students, so that the transit system faces only a single transaction.

Although it dropped the identification card plan, the transit system still raised student fares, setting them at $1.25 per week.

One transit board member suggested that the state be asked to help pay school fares. He pointed out that Ohio subsidizes transportation of rural students and those in smaller cities where the children are carried in school-owned buses or under contract.

In Cleveland, virtually all pupils walk, drive or use public transportation. The school system transports only a few in special cases, such as crippled children.

A "How-to" convention for school business officials

■ In educational circles, The Association of School Business Officials is noted for sponsoring "practical" annual conventions. Traditionally, they omit most of the broad policy-level speech-making and concentrate on discussion meetings of a practical nature.

The association's 44th annual convention, to be held in New York Oct. 5-9, at the Hotel Statler, will be no exception. Seminar type meetings are now scheduled in the following areas:

Accounting and finance
School planning and construction
Maintenance and operations
Personnel management
Insurance management
Purchasing
Transportation management
Cafeteria management
General business administration

In addition, a clinic will be featured where individual counseling may be obtained on problems that pertain to a specific school district or business official, with information and guidance given by experts in a particular field.

Fees are nominal

Registration for the convention is only $5 but, since the convention is open to "members only," nonmembers will be required to join the association to attend. Membership is $5.00 annually.

While the annual meeting is designed primarily for school business officials, last year more than 10% of the attendees were school board members. By the same token, in those instances where the school board member or the superintendent forms the business administration service in his district, he is eligible for membership in the association.

For reservations

Hotel and convention reservations may be made by writing to the Association of School Business Officials, 1010 Church Street, Evanston, Ill.

How to select and budget for TEXTBOOKS

A few years ago the NEA reported the results of a survey in which teachers were asked to state the chief obstacle to efficient and successful teaching. At the head of the list came "lack of an adequate supply of good textbooks." At about the same time, a more scientific study further reinforced this statement. The State University of Iowa demonstrated that the greatest classroom achievement—as measured by their tests of basic skills—consistently occurs in those schools most generously supplied with books.

Few schoolmen will disagree with the contention that books are critically important—even without such evidence. Yet the *per capita* supply of textbooks has been dwindling over the last 10 or 15 years. The textbook publishing industry estimates that today's student has 20% fewer books available to him than the child of a decade ago.

Why the decline? The critical reason seems to be purely mechanical—*lack of knowledge as to how textbook needs should be projected and budgeted.*

The following interview, with Dr. Austin J. McCaffrey, newly appointed head of the American Textbook Publishers Institute, seeks to pinpoint some of the practical procedures that can be used by a school district to assure an adequate and economic supply of books. Dr. McCaffrey has been a teacher, principal, and superintendent, and prior to his recent appointment was commissioner of education for New Hampshire.

Q Dr. McCaffrey, is there any way that a school district can tell if it's spending enough money for textbooks? Is there any good rule of thumb—like a percentage of the annual district budget?

MCCAFFREY: There are too many variables in a district budget to use any percentage figure. "Expenditure per pupil" is safer. But, even with this method, you must know something about the existing inventory of books in the district. I don't think the question can be answered categorically.

Q: Take an average situation. Is there any guide that an administrator or school board member could use—any rough measurement—as a starting point in evaluating his own district's textbook budget?

MCCAFFREY: Well, at the present time, on a national basis, expenditures for textbooks for students on the elementary and secondary level average less than $5.00 per pupil. To break this down a little further, that's about $3.50 at the elementary level and about $6.50 at the secondary level. I can tell you that this type of expenditure does not make it possible to equip the libraries and the classrooms with sufficient books so that the students can each have the material they need.

Q: What should the expenditure be?

MCCAFFREY: In the schools which we think are doing the best job in education, they invariably show up spending double that, or more. An expenditure of $8.00 per year per pupil for instructional materials would put any district in the upper group of the school systems in the country.

Q: Doesn't "instructional materials" imply more than just textbooks?

MCCAFFREY: Yes, that includes visual materials, and maps, and tests, etc. But the overwhelming expenditure in that category would be for textbooks, reference books and workbooks. Incidentally, I wouldn't call this heavy spending. A few years ago, the New York State Department of Education made a study in Yonkers. They were deciding whether they were going to withhold state aid from that community. They recommended that a minimum expenditure of $3.00 per pupil be made for *library* books. That was the minimum. Textbook costs would be about double what was used for reference books.

If your school district is plagued by a shortage of textbooks each fall — despite apparently adequate pre-planning — you are probably guilty of faulty budgeting. In this interview an authority outlines some proved-in-practice methods for selecting books and assuring an economic supply.

Q: As the head of the Textbook Publishers Institute, Dr. McCaffrey, you're naturally in a prejudicial position. Is there any way to document this per pupil expenditure figure?

MCCAFFREY: I think it can be documented in this way: Progressive educators, basic educators, almost everybody agrees that the book is still the key to organizing the instructional program. You've got at least five curricular areas, even more in secondary school. You just can't get away from the fact that you're going to need approximately $8.00 of books a year per pupil. Those who are not spending that amount of money are doing one of several things: They are sharing books, which means that pupils do not have copies of their own to use constantly, they're not keeping up with the growth in enrollment, or they're not replacing outdated textbooks.

Q: You consider sharing of books to be bad?

MCCAFFREY: Yes I do. Although, some books can be shared quite properly at the secondary level. For example, in the language arts programs in the secondary schools "Silas Marner" is one of the basic reading books. If you had 200 pupils in the grade level using that book, it might well be that 50 or 75 copies would be adequate. It would be perfectly sensible and proper to have the children read the book at different times during the year—each pupil during the period when his class is studying that subject. He would have total use of the book at that time—so he would not be handicapped. Let's contrast that with an elementary fifth grade where a geography book is being used. It's imperative that each has his own copy. I have four sons of my own and I know what it is for a youngster to come home at night to do homework and not have his book there for reference. This is even true for a supplementary geography book. If there are only a few copies for a large class, a child is held up on reading and carrying out his assignments.

Q. But you do believe, in the interest of economy, that some books can be shared if the grade level and the subject are right?

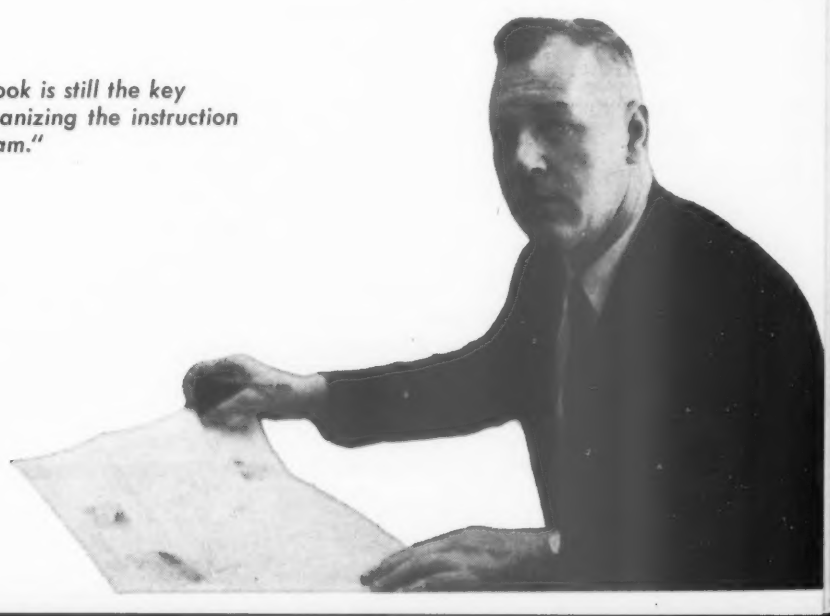
MCCAFFREY: What I am saying is that the multiple use of books works out best in those areas where the curriculum can be organized so that certain units are taken up in different sections at different times. This will not work in the elementary school—grades one through six. In the elementary schools the curriculum is quite rigid. Students are handled as a class.

Q: Let's go back to this question of the administrator or the school board member who is trying to evaluate his own district's books. Suppose you were called in as a consultant to do this job for them. Suppose they said, "Take a good look at our textbooks and tell us how we stand." How would you begin?

MCCAFFREY: First, I'd have to know something about their objectives. What do this school board and superintendent want their educational program to reflect?

Q. Let's take a community that sends a good many of its children on

"The book is still the key to organizing the instruction program."



BUDGETING FOR TEXTBOOKS

1. TO MAINTAIN BOOK INVENTORY

a. Current total expenditure for printed materials of instruction

b. *Current book costs:* Subtract from total budget the sum spent for consumables (workbooks, tests, etc.), books for curriculum expansion and new *outfits* of books required by increased enrollment

c. *Next year's additional book costs:* Divide the sum spent for books for curriculum expansion and new outfits by estimated life of books

a. $53,600

$16,000 Consumables

b. 4,000 Expansion

+ 3,600 New Outfits

Deduct 23,600

Current costs $30,000

$ 4,000 Expansion

c. + 3,600 New Outfits

$7,600 ÷ 4 Years = 1,900

Needed $31,900

2. TO INCREASE BOOK INVENTORY

d. Determine percentage of inventory increase required by multiplying expected enrollment increase by estimated years of life of books

e. Multiply cost to maintain inventory by percentage above

5% Enrollment up

d. × 4 Years of life of books

20%

$31,900 Maintenance

e. ×20% (above)

Needed $ 6,380

3. CONSUMABLES AND CURRICULUM EXPANSION

f. *Current costs:* Add the amounts spent for consumables and books for curriculum expansion

g. *Next year's additional costs:* Multiply consumables and expansion costs by expected enrollment increase

$16,000 Consumables

f. + 4,000 Expansion

$20,000

$20,000 (above)

g. ×5% Enrollment up 1,000

Needed $21,000

Total Budget $59,280

to college. What would you recommend?

MCCAFFREY: The first thing I would tell this district to do would be to prepare an inventory of just what they have in the way of textbooks. Then I'd recommend that they examine them subject by subject. Let's take mathematics for grades one through 12. I'd say to examine carefully the introductory books, the intermediate and the junior and senior high school texts. See if they follow a pattern, if they cover completely the concepts and principles which are embodied in the best guides for programming mathematics. The average district is going to have to get some help in doing this. That would be the starting point.

Q: Would you need a similar guide in subject areas other than mathematics?

MCCAFFREY: Yes. In fact, the American delegation that recently returned from Moscow emphasized that we need more articulation between the elementary and the secondary schools, and the secondary schools and the colleges, in this country. That is where we have a great waste of teaching and of instructional material.

Q: Does that mean, if a district is going to have a properly articulated program from first through 12th grade, that it must take the product of one textbook publisher throughout in each subject area?

MCCAFFREY: No—not at all. It is surprising how the different series in mathematics, or reading, or language arts, have so much in common. It is entirely possible to use books from different publishers and have them work smoothly into a good curriculum.

Q *That implies that there really is such a thing as a "national curriculum" in most subjects.*

MCCAFFREY: That's right, although there is really no attempt to standardize our curriculum on a national basis. It's a good thing, since one family out of four in the United States moves each year. In my own case, I moved in January from the public school system in Manchester, N. H., to the public school system of the city of White Plains, N. Y. My children were able to make the change without difficulty. There are small differences from state to state and from town to town, but they're usually quite minor.

"Publishers no longer publish textbooks. They publish programs."

Q: Back on this question of using one publisher's product. Would you say there's any advantage in standardizing on one publisher in one subject area in elementary school and then, perhaps, using a different publisher in secondary school?

MCCAFFREY: That is very common. One of the reasons that this takes place so many times is that a publisher will put out a new set of books at a time when the school board and a superintendent feel that a change in curriculum is needed. The two go hand in hand. The whole series of new books is adopted.

Q: Dr. McCaffrey, what criteria can a school board or a superintendent use in evaluating whether the books in any given subject area need replacing?

MCCAFFREY: The most obvious criterion is whether the book is up-to-date in terms of the way it handles subject matter. For example, many books published only a few years ago in geography and history don't give emphasis to the development of the backward nations or the young nations of the world. This kind of book doesn't give a child the information he needs to have an understanding of the world in 1958. It's important to remember that more than 30% of all children in high school never finish it, even in this day of universal education. They get their last formal look at history while they're in school. Moreover, only 2% of the adults in this country read a book a year. With facts like these you can realize that if our textbooks aren't up-to-date, the products of our schools—as much as 30% of the product—end up with an "old look" at our social structure in the world.

Q *What is the current life expectancy of a textbook?*

MCCAFFREY: I think most school districts change every four or five years. We feel, in these times of great change, that in certain areas—particularly in science and social studies—this should be reduced to a shorter period.

Q: Dr. McCaffrey, I'd like to come back to this subject of selecting textbooks a little later. Sticking to the financial aspects, from what you've said, most districts in the country aren't spending enough money for books. Do you think this has been caused by inflationary factors, or by the need to put dollars into new buildings, or by lack of understanding of the importance of adequate textbooks?

MCCAFFREY: Economic pressure is certainly a factor. With tax rates going up there's a tendency to economize in all areas. But I think the main trouble is the matter of *faulty budgeting*. School administrators constantly fail to allow the needed money to cover increased enroll-

ments. The child in school today has 20% fewer books than the child in 1946. Our pupil population is growing so fast that administrators just can't keep on top of their problem.

Q: You said "faulty budgeting" is at fault. What do you mean?

MCCAFFREY: Take this example. School A with 1,000 pupils spends $3.00 per pupil each year on textbooks. That's $3,000. The average life of these books is five years. That gives you a total of $15,000 worth of books in use—or $15 per pupil for the period. Now let's say the enrollment in that school increases to 1,200 the fifth year and the school still spends only $3.00 per pupil. It will then have only $15,600 worth of books available for 1,200 pupils—an average of $13 per pupil. In other words, in order to maintain its supply at $15 per pupil, it will have to budget the usual $3 per pupil for the 1,000 "older" pupils and $15 for each of the additional 200. That's the only way to give this "new" 200 its own complete set of books.

Q: In other words, most districts use only their per capita figure when budgeting for the next year?

MCCAFFREY: That's right. They say, "We spent $3.00 per pupil last year, so we'll add only $3.00 for each new pupil this year." They forget that the $3.00 figure is only good for maintaining the status quo. In setting up a budget you must compensate for two things: First, the cost of maintaining a usable inventory and, second, the cost of increasing the inventory to provide a complete set of books for each new pupil. You can add to that additional funds to permit a richer and more generous supply of collateral books.

Q Is there any way of anticipating, with a rule of thumb, the cost of maintaining an inventory? Omit the problem of increased enrollment.

MCCAFFREY: This is really an annual depreciation charge. It will amount to 20% or 25% of the replacement value of the total book inventory at current prices. You set up your depreciation charge on the average life of the books used.

Q: None of that money would be for the eventual replacement of the textbook by a new edition? Is that correct?

MCCAFFREY: That's correct. Incidentally, the Textbook Publisher's Institute has a booklet called "Budgeting for Textbooks." It's a simplified presentation of this whole problem. I'd suggest that anyone interested in it write to us for a copy. *(See chart from book on page 28.)*

Q: When it comes to replacing a whole set of books in a given subject area, what's the best way to go about making a new selection?

MCCAFFREY: Well, first of all, there is an undeniable trend toward giving teachers the major share in the selection of textbooks. That's as it should be. But the ultimate responsibility for the kind of books that are used in the school rests with the school board and the superintendent. I'd like to emphasize that I don't think any board or administrator should relinquish that responsibility.

Q: Why do you put such emphasis on that?

MCCAFFREY: The board and the superintendent are the only ones in an over-all position to evaluate objectives. Teachers have a tendency to look at the mapped curriculum in terms of their own orientation. The average teacher may not have been in the community long enough to know how parents and businessmen feel. The schools must reflect the wishes of the people. This is where I disagree with Admiral Rickover. The strength of American schools depends ultimately on leaders elected by the people. The school board must look to the professionals for suggestions and advice, but they are charged with the ultimate responsibility for decisions.

Q: Do you think that a school board member—or even a superintendent—who has been away from subject matter for a long time—do you feel these people are competent to make these decisions?

MCCAFFREY: I feel the same way about school boards as I do about

continued on page 62

Where to get help—

Single copies of these informative booklets may be obtained free of charge by addressing inquiries to:

Dr. Austin J. McCaffrey,
Executive Secretary
American Textbook Publishers Institute
432 Fourth Avenue
New York, N. Y.

Budgeting For Textbooks
A detailed study on the problem of budgeting

Desirable Procedures for Selecting Textbooks
How to set up a teacher selection committee.

Textbooks and Learning
A look at the textbook in modern education.

If a Textbook Could Talk
A plea for better use of textbooks.

Of the Making of Books
An address given by the president of a publishing firm discussing the editorial aspects of book making.

How to Get The Most Out of Your Textbooks
A helpful guide for junior and senior high school students.

Here's how dissention-wracked Pasadena borrowed the best techniques of partisan campaigning — and won a smashing victory.

How old-fashioned political tactics won a school referendum

By MURIEL BARNETT, *Education Editor, The Los Angeles Mirror*

■ ■ ■ It is hard enough these days for any school district to pass bond issues, increase tax rates or secure top-quality people for its school board. The difficulties are compounded if the schools have long been under attack—as in Pasadena, Calif.

But pro-school groups *can* overcome such a handicap, even in Pasadena. They have done so twice—in both the 1957 and 1958 school elections. This is the story of how the job was done.

The picture was bleak enough in early 1957: for seven years a reactionary group, small but determined, had been able to harass school administrators, prevent the development of consistent school policies and, on occasion, directly control the school board. Since 1950 the district had had two superintendents, and a third was in the process of being pressured into resigning. The five-man school board had had 12 members, few wishing to stand for re-election because of the unending controversy that went with the office.

By 1957 it was obvious to many citizens that the schools could not take much more battering. It was equally obvious that the previous efforts of established pro-school groups (and they were many) had not been sufficient to stir the citizenry at large into protest—or, more important, into action at the polls.

What, then, finally did the job?

By applying the techniques of partisan politics to school elections, a citizens' action group in 1957 swept a "reform slate" into office by the biggest pro-school vote ever recorded in a Pasadena School Board election. This year the same techniques resulted in passage of a complex and disputed bond issue by better than two-and-one-half to one. As a result, the action group appears to have restored a measure of dignity and hope to the school system.

Politics no dirty work

A preliminary word of caution is necessary: "the techniques of partisan politics" is a phrase that implies neither mudslinging and back-room deals nor the use of partisan politics itself. Quite the opposite is true. In fact, the reactionary group made a major mistake in the 1957 campaign, when it sought support for specific candidates on the basis of their political affiliations.

What is meant by "using the techniques of partisan politics" is this:

1. If candidates are involved, the pro-school "party"—like a Republican or Democratic nomi-

nating committee or convention —appraises the field, endorses the candidates it considers *not only most competent for the office but also most likely to get votes,* and then throws its entire organizational strength behind the slate or individual it has endorsed.

It is wise to avoid a great proliferation of candidates if, as in Pasadena, they are elected simply on the basis of most-votes-win. The pro-school "party" is in an advantageous position if—before candidates file—it can secure the agreement of various community groups on a few contenders. The danger of split voting is thus lessened or eliminated.

2. The issues involved should be simplified as much as possible and should be based on fact rather than opinion.

For example, a school bond campaign should build from such indisputable facts as increased enrollments and lack of classrooms —in other words, *a proved need.*

A well-run campaign should avoid being drawn into lengthy controversy on what are essentially diversionary details. The "costly palaces" or "educational frills" gambit can be handled, for instance, by stressing that these are matters of *opinion;* that the need for building funds is a *fact;* that how school money will be spent is the school board's responsibility; and that palaces or frills should be discussed, therefore, with the school board.

3. Again, as in partisan politics, the vote-getting effort should be concentrated where resistance is least.

Says an organizer of the Pasadena action group: "You have to forget those people who are strongly motivated to vote 'no.' There's no point in trying to convert them and no point in looking over your shoulder to see how close they are.

"What you have to do first is to put to work those who are strongly motivated to vote 'yes,' then concentrate on those who are less strongly motivated or more easily confused by a controversy."

4. You do this by giving as many people as possible a personal interest in the election—ideally, by involving them.

An excellent way to do this is

THEY PREPARED BROCHURES, FLYERS AND

Background

BACKGROUND ON BONDS

Facts and Figures You Need To Know Before You Vote June 3

Free public schools for all the children of all the people are one of the American nation's most distinctive achievements. From the days of the founding fathers, when Thomas Jefferson wrote George Washington that our liberties could only be safe in the hands of the people and "of people with a certain degree of instruction," Americans have educated [illegible] of their youth than any other [illegible]. Unique, too, is the fact that local [illegible] shaped their schools far more than [illegible]tion. The national interest, today [illegible] requires a high degree of education [illegible] a free society like ours.

Each of the States has many important functions with regard to education, but it is the people of each community who take the practical actions that determine how good the education of the children of that community is actually going to be. The two bond issues on which each of us will have the opportunity to vote on June 3 give us a chance to take an important practical action with regard to our schools.

* * *

In this pamphlet Pasadena citizens will find information on the high school district bond issue (a major portion of which is needed to complete Pasadena High School); on the junior college bond issue; and on our overall building program — past, present and future.

* * *

Financial fact sheet

FACT SHEET OF GENERAL INFORMATION

CONCERNING THE PROPOSED BOND ISSUES FOR THE PASADENA CITY HIGH SCHOOL DISTRICT AND THE PASADENA CITY JUNIOR COLLEGE DISTRICT TO BE PRESENTED JUNE 3, 1958

1. QUESTION: IN WHAT SCHOOL DISTRICTS WILL THE BOND ELECTIONS BE HELD?
ANSWER: In the Pasadena City High School District and the Pasadena City Junior College District. There will be no bond election in the elementary district.

2. QUESTION: WHEN WILL THE BOND ELECTIONS BE HELD?
ANSWER: The bond elections will be consolidated with the State Primary Election on June 3, 1958.

3. QUESTION: WHAT IS THE AMOUNT OF THE BOND ISSUE?
ANSWER: $8,000,000 in the high school district and $5,000,000 in the junior college district--a total of $13,000,000.

QUESTION: WHAT IS THE BONDING CAPACITY OF THE TWO DISTRICTS?
ANSWER: The bonding capacity of the high school district is approximately $17,079,390; the bonding capacity of the junior college district is approximately $18,267,807.

[illegible]STION: HOW IS BONDING CAPACITY DETERMINED?
[illegible]ER: In each district it is figured by taking 5% of the total assessed valuation of the district.

[illegible]W: HOW MUCH OUTSTANDING INDEBTEDNESS DO THE TWO DISTRICTS HAVE?
The amount of unmatured bonds in the high school district is $6,400,000 and in the junior college district $540,000.

WHAT PER CENT OF THE MAXIMUM BONDING CAPACITY OF THE TWO DISTRICTS WILL HAVE BEEN USED AFTER PASSAGE AND SALE OF THE BONDS?
[illegible]y 84.3% of the high school district's bonding capacity and 44.5% of the [illegible]ing capacity of the junior college district.

WHAT WILL BE THE COST OF THE PROPOSED HIGH SCHOOL BONDS TO A HOME OWNER LIVING IN THE HIGH SCHOOL DISTRICT?
ANSWER: On a home having a fair market value of $15,000 with an assessed valuation of $3,750 by the County of Los Angeles, and if the bonds were sold all at once at 3% interest, the average cost over a period of 20 years would be approximately $5.78 per year or less than 2 cents a day.

Fact sheet

Facts About Pasadena's Public Schools

LEAGUE OF WOMEN VOTERS OF PASADENA

160 North Oakland Ave. Pasadena, California

April, 1958

WILL BE BUILT WITH 1956 BOND ELECTION FUNDS

[illegible]STRUCT [illegible] FUNDS

[illegible]OURTS
[illegible]L COURTS
[illegible]RTS
[illegible]IAMOND
[illegible]ACILITIES
[illegible] FIELD FACILITIES
[illegible] FIELD

UTILITY
SHOWER
MUSIC
ADMINI[illegible]
CLASSR[illegible]
LIBRAR[illegible]
LUNCH
DRAMA
SHOP
PARK
GIRL
BAS[illegible]

COOLEY

PASADENA HIGH

Citizens say

"...so why do we need more school bonds?"

Pete: Hey, how come? You usually work in the yard all day Saturday.

Joe: I know. I hate to leave my crab grass . . .

Pete: I'll bet.

Joe: But it'll wait—and the school bond election won't. I'm on my way to campaign headquarters to help out.

Pete: You *for* it? Someone was telling me the schools don't really need all that money. $13 million, isn't it?

Joe: I can't believe anyone who knows the facts would say *that.* Sure the schools need the money . . . but the figure to keep in mind is $8 million. That's what the high schools need. The extra $5 million is to modernize sections of the Junior College, and it looks now as if this won't cost us anything.

Pete: Something for nothing *these days?*

Joe: Sure. The money we get for students who live out of the district must be used for buildings and will retire the J.C. bonds real fast.

Pete: O.K. $8 million. I still say it's a lot of money.

Joe: That's right. But it's the *minimum* amount needed to make our high schools both safe and educationally adequate.

Pete: You positive about that? The schools I've noticed look O.K. to me.

Joe: Why'd you just re-shingle your roof?

Pete: You know why. Piecemeal patching wasn't sensible any more. I'm not griping, though—the old

the facts, drowning out the opposition.

to establish a precinct organization capable of reaching every citizen at his own front door.

How Pasadena did it

The school district was divided into eight main areas (central, south, etc.), each of which had a chairman. For each elementary school in his or her area, a district chairman was appointed. There are 35 elementary schools in Pasadena, but no more than six in any one of the designated areas.

Each district chairman then secured a captain for each political precinct in the district—there are 505 political precincts in Pasadena.

Finally, each precinct captain enlisted four or five block workers to make door-to-door calls.

Thus, close to 3,000 citizens became intimately involved in the school election through the precinct organization alone!

To determine (*see Principle Three, above*) how precincts had voted in previous school elections, the 1954 and 1956 voting records were checked. Thus those precincts known to have been strongly pro-school were identified.

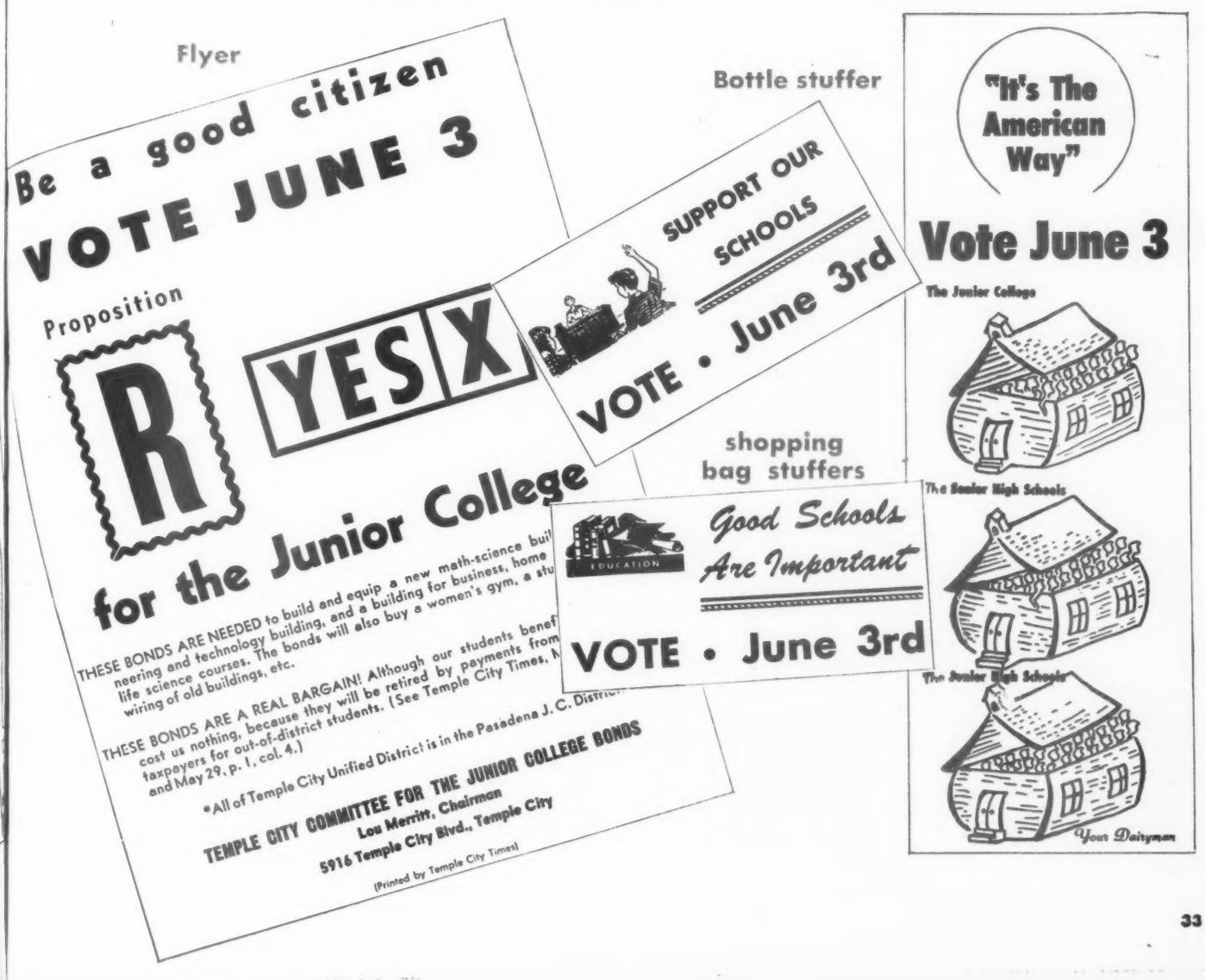
"Naturally, in an organization as big as this and entirely staffed by volunteers, some people at every level were bound to fall down on the job," says one of the directors of the precinct organization. "But we didn't let this happen in those precincts which had voted strongly pro-school in other elections."

Lists of registered voters were purchased, transferred to cards and given to precinct captains. These cards, in turn, were channeled to individual block workers as a guide for house calls. If the householder, when visited, seemed friendly toward the schools, the precinct organization made it easy for him or her to get to the polls—offering transportation or baby-sitting services.

In addition, during the afternoon of election day, poll-checkers went to each precinct, checked the register and reported to the precinct captain if voters presumed to be friendly to the schools had not yet voted. They were then telephoned and reminded that the polls closed at 7 p.m.

It was hard to staff the precinct organization in '57 because the PTA could not officially participate in a school board election. For the bond

GIMMICKS FOR DISTRIBUTION TO THE PUBLIC


Flyer
Be a good citizen
VOTE JUNE 3
Proposition
R
YES X
for the Junior College
THESE BONDS ARE NEEDED to build and equip a new math-science bui
neering and technology building, and a building for business, home
life science courses. The bonds will also buy a women's gym, a stu
wiring of old buildings, etc.
THESE BONDS ARE A REAL BARGAIN! Although our students benef
cost us nothing, because they will be retired by payments from
taxpayers for out-of-district students. (See Temple City Times, M
and May 29, p. 1, col. 4.)
*All of Temple City Unified District is in the Pasadena J. C. Distric
TEMPLE CITY COMMITTEE FOR THE JUNIOR COLLEGE BONDS
Lou Merritt, Chairman
5916 Temple City Blvd., Temple City
(Printed by Temple City Times)
Bottle stuffer
SUPPORT OUR SCHOOLS
VOTE • June 3rd
shopping bag stuffers
EDUCATION
Good Schools Are Important
VOTE • June 3rd
"It's The American Way"
Vote June 3
The Junior College
The Senior High Schools
The Junior High Schools
Your Dairyman

election this year, however, the PTA directly supplied much manpower, especially district chairmen.

Another bonus accruing to the '58 campaign was the presence of a solid core of block workers who had gotten their baptism by fire in the preceding year.

Says a man who was active in both campaigns: "Our hardest job in '57 was to get doorbell-ringers. Most people were afraid of it, afraid they'd have doors slammed in their faces, afraid they'd be accused of telling someone how to vote—even though they were instructed to ask each householder simply to study the facts in the literature and then vote as he thought best.

"By '58 they had found out, of course, that they were genuinely welcomed by many citizens and were treated courteously by most. They also came to realize that their own willingness to call on a neighbor in person strongly pre-disposed the average householder to read the literature they left."

Work far in advance

Although the actual door-to-door calls were made during the fortnight preceding the election, the block workers had been involved in organizational and recruitment meetings for weeks previously. These were held both to instruct workers on their duties and to inform them on school bond facts in the event that householders to whom they delivered the literature wanted to discuss the election.

Meanwhile, the executive committee of the citizens' action group was raising funds and planning other approaches to Pasadena voters.

Incidentally, one of the strengths of the action group was that it was not a "closed corporation." From the time of its organization it included many citizens who had not previously and did not commonly work together: representatives of organized labor, the churches, the ethnic minority groups, businessmen, teachers and other professional groups, and lone individuals without organizational ties but with usable campaign skills.

Jobs were given to any competent volunteers—even to an 11th-hour entry, a man who offered a few days before the election to persuade local merchants to publicize the need for bonds in their regularly-scheduled newspaper ads. He persuaded more than 25.

Says the individual who approached Pasadena churches for campaign help in 1958: "It is often assumed that the churches are—or should be—above such mundane matters as a school election.

"Sure, we got a lot of turn-downs. But on the positive side we got the personal endorsement of a Catholic monsignor—a fact which was well-publicized—and of 30 rabbis, ministers and other religious leaders. We got the use of four church mailing lists and notices in many church bulletins."

Endorsement from individuals

Endorsements were sought from (and given by) the civic groups and individuals one would expect to support school improvements. But organizational endorsements were considered only as a first step. After the Chamber of Commerce had endorsed the bond issue, for example, the citizens' action group suggested that a follow-up letter be sent to each of the chamber's 1,400 members.

On the theory that you have a better chance of getting a man's vote if you ask him to help you, the letter asked each chamber member if he would:

1. Allow the use of his name as an individual endorser.

2. Give money to the campaign.

3. Display posters in his place of business.

4. Distribute campaign literature in his place of business.

5. Insert campaign literature with his bills or letters.

A stamped postcard was enclosed for his reply. Over 100 cards were returned with offers of cooperation or with cash.

The same technique—using members' organizational loyalty as the bridge of their attention but then asking for their help as individuals—was duplicated with many Pasadena groups. In some cases the letterhead of the citizens' action group was used, in other cases it was considered more effective to use the specific organization's letterhead, and in some cases (as in a letter signed by a group of ministers) no letterhead was used. Always, the signature was that of an officer or respected member of the group to whose member it was addressed.

Over 36,000 such letters were mailed—each asking the recipient to do something for the bond election, if only to telephone a friend or neighbor about the need for school building funds. Campaign literature was enclosed in most letters.

The campaign literature

As for the literature itself, it was as personalized as every other aspect of the campaign.

Some was prepared directly by the citizens' action group. In the 1958 bond election, this included:

1. A basic brochure, written as a dialogue between two citizens.

Assuming that the average voter hates to read figures and is confused by them, it emphasized the need for building funds and the reason for the bond issue. Endorsements and photographs of two outstanding citizens were included, as well as names of other citizen endorsers and members of the action group. Over 75,000 of these brochures were used.

2. As a companion piece, a fact sheet setting forth exact figures.

This was originally prepared by the school administration, then lithographed by the action group and given out by block workers or others whenever a citizen showed interest in details of financing or wanted exact information on how bond funds would be spent. Some 25,000 of these fact sheets were used.

3. Flyers.

Approximately 15,000 single sheet appeals were printed and distributed at various stages of the campaign and for varying purposes. Typical: messages tail-

continued on page 65

EXPLORATIONS IN EDUCATION

What are others doing to improve their local schools? Here is a further report of a joint research program that will make available to school boards and superintendents information on new approaches to utilization of facilities.

■ ■ ■ The following case histories are reported as a part of a joint research project with the education committee of the Massachusetts Association of School Committees.

In this and future issues, we will report as many good examples of educational research being conducted at the local school district level as we can come by. The continuing success of the program depends on the willingness of readers of this magazine to *share* their own experiences with others.

With this in mind, we suggest that you ask yourself, what right now, "What are we doing in our district that can be of help or reassurance to other districts struggling to improve their schools?" Then glance through these few criteria of what we are seeking:

1. Any program that makes better use of teacher abilities.
2. Any program that breaks away from traditional concepts of class size and space utilization.
3. Any program that makes better use of the very limited number of hours in the school day.

Ground rules: Your report need not be a long one. You can use the form at the end of this article or write us a letter. Your experiment need not be a proven success. This is *Research*—and the very word "research" presupposes the right to fail.

Please address your material to "Explorations in Education," in care of this magazine.

USING SCHOOL BUS DRIVERS FOR DRIVER EDUCATION

IN AN EFFORT TO EXPERIMENT with the so-called laboratory assistant idea, the Richwood, West Virginia, High School selected their driver education program as a testing ground. In spite of the teacher shortage, it was found that in this program the teacher was spending five periods a day with only four students each period—the lowest teacher-pupil ratio in the whole school. It was decided to use assistants in the "behind-the-wheel" phase of the course, and the West Virginia Board of Education authorized a special instructional permit to qualified school bus drivers to handle this phase under the supervision of teachers of driver education.

The general purpose of this study was to explore the possibility of training more students effectively in driver education, and to ascertain whether students taught by both a regular teacher and a bus driver would receive training in knowledge, skills and attitudes which was as good or better than that offered by a driver education teacher alone. At the same time, cost comparisons were maintained. A control group was compared with the experimental group.

Conclusions:

The objective data gathered indicates that the experimental group gained more than the control group in driver skill. This was indicated by the driver-skill test administered by the state department of public safety. The gain in knowledge, as measured by the driver-knowledge test, showed no difference between the two groups.

The driver-reaction inventory indicates that the control group made a significantly greater gain in driver attitudes than the experimental group.

The cost of the program with the assistants was

EXPLORATIONS IN EDUCATION *continued*

$1,401 less than the previous year which had been under a full-time driver education teacher, and more students were trained. The use of an assistant permitted the driver education teacher to teach classes in his other field of certification, which was business education.

Reported in January, 1958 issue of "The Bulletin," *a publication of the National Association of Secondary School Principals.*

LAY READERS USED TO CORRECT ENGLISH COMPOSITIONS

IT TAKES AT LEAST TEN minutes to diagnose and correct an English paper. After teaching 200 students a day, a teacher is in poor shape to spend two hours every night reading papers. If he does, it will take him 17 nights to finish 200 papers. Result: insufficient written work is assigned—often as few as four papers a year.

In the high schools of Bound Brook and New Brunswick, N. J., an experiment in the use of lay readers has been underway for a year. A brief announcement in the local paper brought out 67 applicants in Bound Brook and 110 in New Brunswick. Applicants were given four tests: a high-level verbal aptitude test, a paper-grading test, a paper-correction test and a paper to be written on a choice of topics.

Fourteen readers, with alternates in reserve, were hired, each to assist one teacher in not more than two classes. The readers—most of them college-educated housewives—are paid at the rate of 25¢ per paper, which comes to about $1.50 per hour. The amount of writing assigned in the schools has been increased, and there have been no serious complaints. Costs for readers average about $3.00 per student per year.

Improvement in writing is being measured during the summer by pre- and post-experiment-essays on the same choice of topics, graded by expert readers who will not know which papers are initial or final, experimental or control.

The program was directed by Education Training Service, under a grant from the Fund for the Advancement of Education.

EVENING SCIENCE SEMINAR FOR GIFTED H.S. STUDENTS

THE EVENING SEMINAR was begun in February, 1956, at Niles Township High School in Skokie, Illinois. Broadly conceived, the program attempts to develop keen perceptions of, and understandings related to scientific phenomena as they affect human life. The seminar is held weekly from 7:30 until 10 p.m. and is staffed almost completely by scientists and mathematicians living in the community.

Several criteria are used for the selection of students. They are screened on a basis of four factors: **1.** *An interest in science and scientific work,* **2.** *relative success in a Westinghouse Science Talent Search examination,* **3.** *personal interviews with the student and his parents, and* **4.** *individual interviews with the student himself.*

Seminar topics include: the composition of a science paper, the use of clear language in writing a science report, preparation of oral reports and extemporaneous response to criticism of an oral nature, the basis of logical argument and the many-faceted aspects of critical thinking. In addition, students discuss specific topics and handle individual research projects. A typical project: The Investigation and Harnessing of an Ionospheric Phenomenon.

The research necessary for the successful completion of such projects is undertaken in the high school science laboratory, at a nearby university, in the laboratory of a nearby chemical plant, at a television studio in Chicago, and in basement workshops. Field trips are used to enrich the course and seek out information.

To facilitate relations between the staff of the seminar and the staff of the school, and to provide the immunities and privileges of faculty status, the staff-members of the seminar were taken into the regular faculty as consultants at the rate of one dollar per year.

Reported by Vernon F. Haubrich, Assistant Professor of Education, University of Utah, in "Illinois Education."

MEETING THE NEEDS OF FAST AND SLOW IN K-8

FOR THE LAST TWO YEARS, the Waldwick, N. J., schools have been operating a trial program in the eighth grade, which will now be extended to all levels below high school. The program is divided into three phases:

Phase One: Grades 8, 7, and 6, have been organized into an A, B, C section grouping. Section C consists of those boys and girls who, in previous years, have shown that they can and are willing to learn more rapidly than other children. This group is not selected on the basis of I.Q. or chronological ages. The other two sections are grouped heterogeneously on the basis of previous achievement and their willingness to learn.

All sections meet the same basic educational requirements, but Section C may meet the standards more easily and thus sooner than the other sections. The time saved is devoted to enrichment on a horizontal rather than a vertical basis. The new work does not consist of "more of the same," nor does it transgress on the material in the next grade. All three sections travel at their own rate, and advance as rapidly as the students can master the materials and meet the required standards. A student can be moved up or down from any section, without loss of vital material, since all will cover

the same basic work and meet the same standards.

Phase Two: This is an effort to meet the challenge of the entrance age to kindergarten. Starting in September, 1958, grades 1, 2 and 3 will be designated as "ungraded," and will be noted as the primary grades on the 1st, 2nd and 3rd levels. In each level, there will be two steps. Basic requirements, with minimal standards for each of the six steps over a three-year period, will be established. Under this arrangement, it will be possible for a rapid-learning child to advance through these first three levels in six steps in two years, provided other factors are equal. The child who starts late because of his birthday will have an opportunity not only to make up a year, but to advance to the rapid-learning group in the upper grades as well. Cut-off age for entrance to the kindergarten will still be maintained as on or before October 1, of the starting year.

Phase Three: This phase will deal with the method of grouping to be used in reading. Usually three groups, designated "rapid," "average" and "slow," are used. In the second grade, for example, this traditional method looks something like this:

Teacher 1	Teacher 2
A-B-C	A-B-C

Instead of this procedure, the following grouping method will be used:

Teacher 1	Teacher 2
A-B	A-C

It is believed that this method will permit each teacher to retain the good groups, but to prepare for only two ability levels. Groups A-B and A-C will alternate yearly with each teacher.

It is believed that this entire curriculum will not necessitate greater expenditure of funds, but will permit the use of the teachers' abilities, as well as the children's learning capacities, to a much greater degree.

Reported by John J. Finnessy, Superintendent of Schools, Waldwick, N. J.

Here's what we're doing in our district

SUBMITTED BY _____ TITLE _____

SCHOOL DISTRICT _____

ADDRESS _____ CITY _____ STATE _____

RETURN TO: *Explorations in Education • School Management • 22 W. Putnam Ave • Greenwich, Conn.*

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HOW YOU CAN COMPARE

School Building Costs

By N. L. ENGELHARDT, Jr. and F. G. LOPEZ
Engelhardt, Engelhardt, Leggett & Cornell, Educational Consultants

EDITOR'S NOTE: This remarkable study offers much more than a method for comparing two or more schools. For the district getting ready to build, it provides a penetrating insight into the factors that should be considered before any plans are approved.

■ ■ ■ Last year the people of the United States built well over $2.5 billion worth of public school buildings. And there is still no publicly-accepted fool-proof way of finding out how the costs of these buildings compare, or of determining the educational value received for this vast sum.

Many attempts to find a yardstick have been made. Unfortunately, very little has been done to create a sound basis for comparison. Too often, schools are compared on such criteria as "cost per pupil" or "cost per square foot," and wild claims have been made about theoretical economy or over-spending. In most of these cases, it will be found that the comparisons of two or more schools have not been based on the same cost factors in computing their basis for comparison.

The cost analysis and comparison that follows, represents an effort to provide a fair basis for comparison. It is limited to only 10 schools, all built between 1955 and 1958. It is based upon a formula developed by N. L. Engelhardt, Jr., the fruit of work dating back to the 1930's which was signaled by the publication in 1939 of his book, "School Building Costs."

What this formula does

The present study, undertaken by the firm of which the authors are members, has several objectives:

- **A.** *To ascertain the actual costs of construction of individual schools.*
- **B.** *To relate these to the variations in construction prices which have been recorded here:*
  1. *Year of construction*
  2. *Geographical region*
  3. *Type of community*
- **C.** *Thus to reduce all cost data to a common base, the year 1949; to a common region,*

What is a good school and how much should it cost? Here is a do-it-yourself formula and work sheets for rating different schools fairly.

the North Central States; and to a common locale, the typical suburban district.

D. *To relate the* amount *of building actually constructed to the real educational space provided, as a measure of the school plant's efficiency.*

E. *To relate the number of pupils housed to the space provided.*

F. *To relate both the amount or area of the building, and the number of pupils housed, to the dollar cost* only *after that cost has been reduced to the common base explained above.*

It can be seen that this procedure makes a beginning at putting things on an even basis before comparing them, and that a start has been made toward evaluating the educational facilities for which so many dollars have been spent. It is a start only. For one thing, many more schools must be added to the analysis before it can have any general validity. For another, there are still too many variables to permit, on the basis of the present analysis, the statement that any of these buildings is of poor quality.

In fact, all of the schools under study are considered "good." None of the communities which built them have been defrauded. All have received the diligent attention of highly trained professional people—educators, architects, engineers—under the close supervision of serious, responsible boards of education and school building committees. Some have had to stand up under withering political fire before even a shovel-full of earth was turned. In all cases, the firm of Engelhardt, Engelhardt, Leggett and Cornell was the educational consultant. This may mean that there are certain similarities where other schools might exhibit differences; it has virtues too, in thus reducing the number of variables and in the complete familiarity of the authors with each case.

A preliminary publication of the "Engelhardt Formula" appeared in *Architectural Forum* (*Nov., 1957*). The basic formula remains the same, with a few corrections of indices (none of sufficient magnitude to have much significance) but with techniques and procedures unchanged. There were then, and there are now, six principal steps:

1. *Obtain actual building construction cost.*
2. *Adjust this to arrive at a comparable figure.*
3. *Find the "normal" pupil capacity and obtain an* adjusted *cost per pupil.*
4. *Find the gross area and obtain the* adjusted *cost per gross square foot.*
5. *Find the net, educationally useful area and obtain the* adjusted *cost per net educational square foot.*
6. *Find the ratio of net to gross area, to measure efficiency.*

The present study extends the work, as shown in the tabulation on the following pages, to include indicators of educational quality developed from the same data, and to provide at least a partial basis for explaining the cost variations that remain. These are all qualitative factors and hence cannot be related in the same manner.

Work is proceeding on expanding the number of schools analyzed. The authors will be grateful to any who care to submit cost and area breakdowns of additional schools.

The methods employed, and evaluations of results, are also under close scrutiny. For instance, there has been serious discussion of the formula for computing gross area. Lumping together all areas not completely enclosed and dividing the results by two does not seem appropriate in all instances. Yet what formula will fit all cases better? So far the accuracy of the results has not been materially increased by using a more complex area formula. The important thing is to measure all schools in identical fashion. Even with this limited number of examples, most of the inevitable inequities have pretty well ironed themselves out. Nevertheless the authors would also be most grateful for constructive criticism and suggestions on this score as well, and express sincere gratitude to the many architects, educators and editors who are cooperating, often at substantial expense, to the success of the study.

What you'll find in this article

This article has been divided into three sections:

1. *How the formula was applied to 10 secondary schools.*
2. *How these schools* actually *compare.*
3. *How to make your own comparison.*

A word of explanation . . .

The tables on the next few pages show the tremendous difference between an "honest" comparison and a "dishonest" one—between a comparison which recognizes all of the variables which effect school costs and one which uses over-simplified short cuts.

For example, everyone knows that building costs more today than it did a few years ago. We know that it is cheaper to build in some sections of the country than it is in others. We recognize that one site can cost more than another to develop. The Englehardt formula reduces these variables and provides new yardsticks for comparing one school with another.

Let's start to compare . . .

The first four columns of the tabulation of costs of 10 secondary schools identify the plants as to general type and location. The 10 schools fall roughly into four plan types (*see drawings*). The actual buildings vary a great deal from the diagrammatic plans, as might be expected. Some of the buildings are two-story, some one-story; some are senior high schools, some junior highs, some junior-senior highs, some four-year (grades 9-12) high schools. The locations cover virtually all regions of the country east of the Rocky Mountains.

Area and architectural efficiency

Column 5 shows the actual gross square footage of each school as built, measured according to the formula used in New York State. Note that three of the schools are very large—from 150,000 to 190,000 square feet in approximate gross area, and that one school contains less than 60,000 square feet gross. Obviously the gross area includes much square footage that is educationally unproductive—thickness of walls, rooms for storage, corridors, etc. Some of this unproductive floor area is necessary for the structure, for the passage of children, for operation and servicing of the building. Some of it is entirely justifiable on esthetic grounds. And, unfortunately, some of it is waste.

Column 6 is the actual net area useful for educational purposes. It is measured wall-to-wall inside, and it excludes all spaces which are not useful for educational purposes. This is the space that actually does the job; it is the value a community really gets for its money.

Column 7 is a list of percentages —the net educationally useable floor areas divided by the gross areas. It is a measure of the efficiency of the plan—but only one measure. Taken alone, the efficiency percentage is not a wholly reliable guide to "the best buy" in a school building.

How many pupils

Column 8 shows the capacity of each school figured on a reasonably optimum basis, identical for all schools. This is extremely important. For example, one school may knowingly be built for a greater number of pupils per classroom, another for a smaller number. It is unfair to compare these two on the basis of actual enrollment, because proper or improper use of the facilities would then alter the facts. So we have adopted certain norms—numbers of students for each kind of teaching station—which reflect what is generally considered good practice. These norms are necessarily somewhat of a compromise between what the educator might regard as ideal and what the average public school can afford. For the schools tabulated, it happens that actual class sizes are substantially the same.

Column 9 shows the year in which construction contracts were let—important because construction costs vary from time to time.

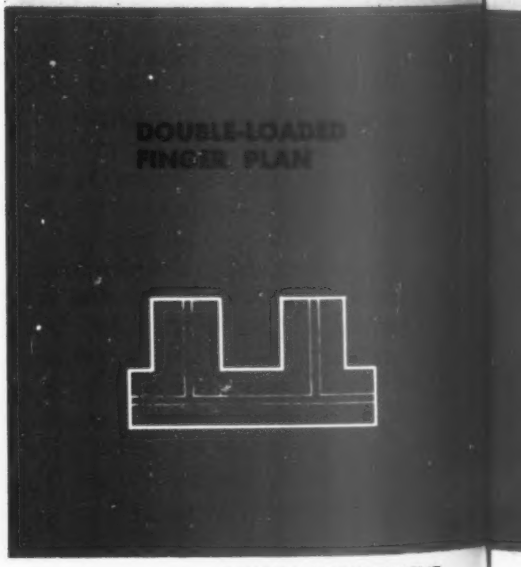
Column 10 lists the actual cost, at the time of bidding, for constructing the buildings. Excluded are costs of land, of site development, of portable equipment, of fees, and of administering construction. Equipment that is part of the building is included. The excluded items either vary widely, depending upon the local conditions or policies, or are not of a constructional nature. To arrive at a true comparison it is essential that only the listed items *(see typical forms, pages 49 50, 51)* be included.

Column 11 provides a means of reconciling some of the variables of time, place and construction practice, and of thus making the actual cost figures comparable. The "correction factors" listed are a composite of three indices: one for the year of contract (derived from cost indices prepared by *Engineering News Record;* one for the region of the U. S. in which the school was built (developed from average square foot costs of elementary and secondary schools in 1951 and 1952); and one, based upon similar experience, which reflects variations in labor and material costs and practices in three types of communities: rural, suburban and metropolitan. The three indices, selected from the table on page 48 are multiplied together.

Column 12 is the actual cost divided by the correction factor: it shows what the actual cost would have been if the school had been built in 1949, in one of the north central states—say, Iowa—in a suburban community.

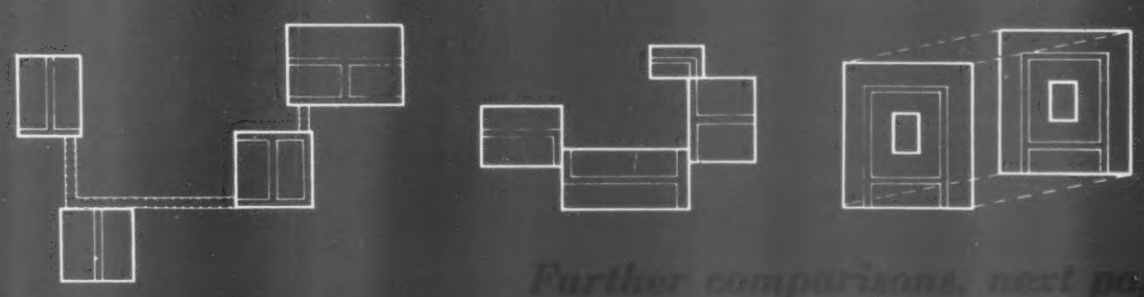
A COMPARISO

1 SCHOOL	2 GRADES	3 LOCATION *(Region)*
A	7–12 Jr.-Sr.	Northeast
B	10–12 Sr.	Southeast
C	9–12 4 yr.	Northern New England
D	7–9 Jr.	South Central
E	7–9 Jr.	North Central
F	9–12 4 yr.	Northeast
G	7–12 Jr.-Sr.	Northeast
H	7–12 Jr.-Sr.	Northeast
I	10–12 Sr.	Northeast
J	10–12 Sr.	North Central
		Averages
		Medians



OF TEN SECONDARY SCHOOLS

4 TYPE (One story unless otherwise noted.)	5 AREA IN SQ. FEET Gross	6 Net educ'l.	7 % EFFI-CIENT	8 PUPIL CAPACITY (Standard)	9 YEAR BIDS AC-CEPT.	10 TOTAL CONSTRUCTION COST—$ Actual	11 Corr. factor	12 Adjusted
Double loaded finger plan	172,464	93,765	54.4	1400	1956	3,337,445	2.04	1,636,002
Double loaded finger plan	93,673	65,119	69.5	1064	1958	1,087,200	0.97	1,120,824
Modified campus; "little schools"	84,090	60,435	71.7	914	1957	1,140,100	1.40	814,357
Modified campus; "little schools"	82,122	55,594	67.7	859	1957	851,936	1.39	612,904
Campus; "little schools"	79,503	45,707	57.5	723	1957	930,166	1.47	632,766
Campus; part 2-story	93,009	53,879	57.9	696	1955	1,342,481	1.59	844,328
Campus, long covered walks	59,364	37,546	63.2	597	1955	735,476	1.59	462,564
Compact; part 2-story	151,655	101,110	67.1	1545	1957	1,760,796	1.76	1,000,452
Compact; "little schools"	193,158	111,605	59.4	1583	1957	4,189,493	2.15	1,948,601
Compact; 2-story	99,642	66,572	66.8	797	1957	1,549,428	1.32	1,173,809
	110,868	69,133	62.4	1018		1,692,452		1,024,661
	126,261	74,576	59.1	1090		2,462,484		1,205,583



Further comparisons, next page

Now you're ready to compare

WE NOW HAVE the ingredients for a roughly fair comparison. It will not be an absolute comparison because a number of imponderables have not yet been weeded out: How hungry were contractors for work? How normal—or abnormal—were site conditions? What level of educational quality was desired? What was the quality of materials, finishes, and built-in equipment? Did the community demand an excessively large gymnasium or auditorium—spaces which are inherently large and expensive anyway, and yet accommodate fewer pupils per square foot than classrooms—or were the requirements of spectator sports and the "little theater" held down within reason? These are some of the variables; they are, in a way of speaking, quality factors. The "economy" item costs less than the average; the "average," less than high quality—and at times, bargains are available in all grades of quality. However, even without eliminating these variables we have now arrived at a reasonable basis for making comparisons.

Comparing per pupil costs

Columns 13 and 14 show the cost per pupil. The first is based on the actual or "raw" cost; to find the second, the adjusted cost is used. Note that School A, using the raw cost, appears to be the second highest in cost per pupil. But the fact is, when the cost has been put on a comparable basis, it is fourth from the highest—close to the average.

Comparing gross area costs

Columns 15 and 16 show the cost per gross square foot. The figure usually publicized—and erroneously compared with other schools' costs—is usually the figure in Column 15: the unadjusted cost per gross square foot. This gives a totally false picture. Not only does it fail to account for the way prices vary according to date, region and locale, it embraces all the educationally useless space, necessary or not, as well as the useful area. The figures in Column 16 take into account cost variations but not plant efficiency, and are thus somewhat better for evaluating a school; at any rate, they are reasonably comparable. Note that for School A, again, the raw cost was nearly $20 per gross square foot; yet when the raw cost is adjusted to the given norms, the comparable cost becomes less than $10.

Comparing "useful" area

Columns 17 and 18 similarly contrast cost per net educationally useful, square foot. This is what is really essential, the square foot that does the work. Note again the variation, sometimes lower, sometimes higher, between the adjusted and non-adjusted figures.

These three adjusted figures—cost per pupil, per gross and per net square foot—furnish as accurate a factual comparison as has yet been developed. Using them we may accurately say: "This school cost more than that"; or "This school cost less." But we still do not know whether what has been paid for is a "good buy." What kind of an educational job will it do? And we have not yet ascertained why costs are high, or average or low. Hence further analysis is necessary. Part of the data needed is contained in the tabulation and part must come from either the educational program or the architectural conditions which the school was built to meet.

A COMPARISON O

SCHOOL	13 COST/PUPIL $ Not adjusted	14 COST/PUPIL $ Adjusted
A	2,384	1,169
B	1,161	1,053
C	1,247	891
D	992	714
E	1,287	875
F	1,929	1,213
G	1,232	775
H	1,140	648
I	2,647	1,231
J	1,944	1,473
Averages	1,596	1,004
Medians	1,820	1,061

Measuring educational quality

Columns 19, 20 and 21 provide some measures of educational quality. Within reason, the more educational space provided per student, the better the educational program. This is indicated in Column 19, where—except for School J, which is so far from the norm as to appear unreasonable—the average is 66.5 square feet. (School J was actually designed for 900 pupils, which would lower its figure to 73.9 square feet, much closer to the average.)

But this, also, is not a perfect indicator of educational quality or character. The next column, 20, lists the educational space contained in classrooms, laboratories and libraries only: that is, facilities for the four basic subjects: languages, including English; social sciences; sciences and mathematics. In all instances, approximately one third of the net educational area is of this nature. The larger this figure is, the more the liberal arts and sciences are emphasized. A low figure indicates that a considerable portion of the curriculum is devoted to other

OF TEN SECONDARY SCHOOLS (con't)

15	16	17	18	19	20	21	22	23	24
COST/GROSS SQ. FT.		COST/NET EDUC. SQ. FT. $		EDUCATIONAL CHARACTER			ARCHITECTURAL CHARACTER		
Not adjusted	Adjusted	Not adjusted	Adjusted	Net. educ. Sq. ft./pupil	Net. acad. Sq. ft.	Type of program	Site	Plan	Struct. materials
19.35	9.49	35.59	17.45	67.0	32,975 (35.2%)	Full Compr.	Level No rock	Long perim. Spacious plan	High qual.
11.61	11.97	16.70	17.21	61.2	18,280 (28.1%)	Departm. Full	Level Poor soil	Long perim. Avg. plan	Air cond. Avg. qual.
13.56	9.68	18.86	13.47	66.1	21,219 (35.1%)	Compr.	Good	Short perim. Several levels	Avg. to good
10.37	7.46	15.32	11.02	64.7	17,287 (31.1%)	Compr.	Hilly Some rock	Long perim. Tight plan	Avg. qual.
11.70	7.96	20.35	13.84	63.2	15,900 (34.8%)	Compr.	Level Avg. soil	Long perim.	Avg. qual.
14.43	9.08	24.92	15.67	77.4	15,348 (28.5%)	Departm. Compr.	Hilly Some rock	Long perim.	Avg. qual.
12.39	7.79	19.59	12.32	62.9	12,899 (34.4%)	Departm.	Hilly Rock	Widely separated units	Lift-slab Concrete
11.61	6.60	17.41	9.89	65.4	36,096 (35.7%)	Compr.	Rolling Good soil	Short Perim. Good organiz.	Avg. qual. High qual.
21.69	10.09	37.54	17.46	70.5	32,738 (29.3%)	Full Compr.	Level Water; Footings exp.	Short perim. Spacious plan	High qual.
15.55	11.78	23.27	17.63	83.5	16,290 (24.5%)	Compr.	Sloping	Short perim. Tight plan lg aud & gym	Avg. qual.
14.23	9.19	22.96	14.60	68.2	22,178				
16.03	9.29	26.43	13.76	72.4	(32.1%)				

subjects, such as shop, music, physical education, etc.

Column 21 merely indicates the general nature of the educational program. All the schools tabulated are "comprehensive" high schools. None are vocational or trade schools. Some are highly departmentalized, many are organized as "little schools" or schools-within-schools.

It is noteworthy that the schools which provide the most usable educational space per pupil are the most expensive per pupil and per net square foot. This does not prove true of the ratio of net academic to total net educational space because gymnasiums, shops, etc., which house fewer pupils than classrooms, are also more expensive.

Measuring architectural quality

Columns 22, 23, and 24 contain some additional indications of the reasons for variations in cost. A good site—fairly level, no rock, no water to be drained—usually means low cost, and vice versa. A spacious plan, or one with a high ratio of perimeter to space enclosed, will cost more than a "tight," compact plan. A high quality of materials, finishes and equipment is initially expensive. All these are matters of choice, in site selection, in making architectural decisions which affect the ease of functioning, and in weighing first costs against upkeep.

How should these schools be rated?

Which school is the "best buy"?

'This is the point at which people with pre-conceived ideas get their first shock. It is important to point out, that while this analysis covers only 10 schools, a number insufficient for sweeping generalizations, the findings check with the authors' experience and with the early research previously referred to.

How these schools rate

The accompanying "rating chart" shows the rank of each of the 10 schools—again, in relation only to these schools.

Column 1 shows the rank according to adjusted cost per pupil. "1" is high, "10" is low.

Column 2 shows the rank according to *unadjusted* cost per *gross* square foot. This is the figure ordinarily quoted, often—unfortunately—by educators, public officials and architects. It is entirely unreliable in making comparisons, for two reasons: because it reflects gross area only, it is no measure of efficiency; and because it does not reflect the way costs vary with time, region and locale, the comparison is not fair. Again, "1" is high, "10" is low.

Column 3 shows the rating according to the cost of total educationally useful area, adjusted to account for the variables of time and place. A fair comparison may be based on these ratings ("1" is high, "10" is low).

On all counts School H is lowest in cost, even on the basis of the raw unadjusted cost per gross square foot. School D rates next, School G next; and so on. School C is about average. School J is the most expensive, with I running a close second. But what have these school dollars bought?

Column 4 rates the schools according to useful square feet per pupil. In this case "1" is low, "10" is high. School B provides the smallest area, School J the largest. Schools C and H are about average.

Which is the "best buy"?

Of these 10 schools, H would appear to be the "best buy." Its cost is lowest on any fair basis; it provides about the average amount of useful area. Checking back to the previous tabulation, we find that structurally and mechanically this is a school of high quality, so its maintenance costs should be low. Its plan is well organized in a compact, two-story plant, so it should function well. Its site, though rolling and evidently somewhat limited in acreage (since the building is two-story), was not difficult or costly for construction.

School C, just above the average on all counts, would seem to be a good, solid performer in nearly every respect.

Note that, of these 10 schools, the extremes of high or low "raw" cost may or may not be identical with the adjusted cost rating. In the case of these schools, also, the greater net useful area per pupil generally means a high cost.

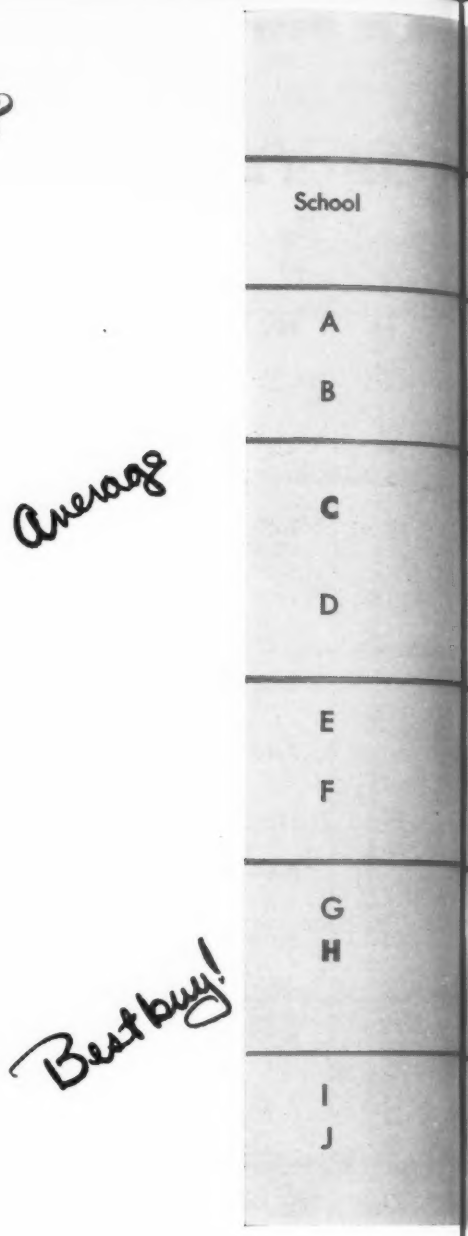
This is logical; it means that the "buyers" of the efficient schools put their money into buying useful area rather than waste space; because the product they bought has not been diluted, far from being spendthrift, they have been shrewd buyers.

Another conclusion: When we consider the net *academic* area shown in Col. 20 of the preceding tabulation, it becomes apparent that, on the average, the higher percentages of net academic area occur in the lower cost schools. Conversely, the spaces excluded from net academic area (gyms, swimming pools, auditoriums, special facilities such as shops, etc.) are expensive. The school whose curriculum requires these non-academic spaces, and whose facilities are to be used to the maximum by adults in the community (spectator sports, little theater groups, etc.), is likely to be more expensive to build.

Quality is the real cost yardstick

Referring to the tabulation of costs and the rating chart jointly, it becomes apparent that one could not say of any of these 10 schools that: "This one has a campus plan; it is expensive." Or: "This one is two-story; it is expensive." The campus plans analyzed ranked about in the middle of the scale. *The two-story schools shown ranked 1, 5 and 10 in adjusted cost!* Nor does grade organization have too much bearing: a junior, a senior and a four-year high school are about at the median; junior-senior schools are found near both extremes. Neither does size of school here prove to be an index of economy. The smallest (in area) school listed, one of average size and one of the largest run *neck-and-neck* for the title of most economical. Almost the same is true of the most expensive.

Aside from the fortuitous conditions (such as, how hungry contractors were for work) *cost of these 10 schools appears to depend principally on the level of educational quality and on the skill with which the buildings are planned educationally and architecturally.* One of these factors may negate the others. School B, for instance, is architecturally efficient in that it has a high



RANK ACCORDING TO COST (High = 1)			According To Educ'l. Area (Hi = 10)	Evaluation
1 Cost ($)/ Pupil Adjusted	2 Cost/ Gross Sq. Ft. Not adj.	3 Cost/ Net Educ'l. Area Adj.	4 Net Educ'l. Sq. Ft./ Pupil	
4	2	3	7	Expensive on either "raw" or adjusted cost basis, but amount of usable educational space is high.
5	8	4	1	"Raw" cost ($ per gross sq. ft. not adjusted) is low. But adjusted cost is high and usable educ. space is low.
6	**5**	**7**	**6**	***"Raw" cost average; adjusted costs and amount of usable educational space slightly better than average.***
9	10	9	4	Costs low on all bases; but amount of usable educational space below average; educational quality sacrificed.
7	7	6	3	Another example of sacrifice of educational space to obtain fairly low cost.
3	4	5	9	Excellent educational space provision, but costs above average.
8	6	8	2	Cost low; educational space extremely low.
10	**9**	**10**	**5**	***Lowest adjusted cost; very low "raw" cost; educational space average. This school appears to be the "best buy".***
2	1	2	8	Good educational space, but extremely high cost.
1	3	1	10	Excellent educational space, but extremely high cost.

ratio of educational to gross area—69.5%. However, in terms of a square footage per pupil, it ranks lowest of the 10.

School F, on the other hand, is only 57.9% efficient; its adjusted costs are somewhat above average; and the useful space per pupil is extremely high. This school was designed for a conventional, departmentalized, curriculum; it has more space devoted to shops, physical education, etc., than most of these analyzed (net academic area is less than 30%) and it was built on a "difficult" site.

Realistic regulations

Some factors are beyond the control of school planners, it is true. Others have been the subject of official regulations. It is recognized that such a small sampling as this does not warrant making strong recommendations, but the results do provide cause for speculating about the validity of the typical state education department recommendation which specifies so-and-so-many square feet per pupil, gross, for a high school; or a classroom of such-and-such size. It is true that these are useful guides, but only in relation to other factors such as nature of the educational program and efficiency of the plan.

But how much more valuable it would be to have as a criterion the net *useful,* not the gross, area per pupil, and an efficiency ratio of total net useful area to gross! The present typical recommendation makes it too easy to stay within arbitrary limits at the expense of educational usefulness. While all the schools tabulated are considered "good" schools in terms of type of program and net educational, or useful, space, their efficiency varies as much as 17.5%. Considering the small sampling, the authors are not now prepared to suggest what precise figures for efficiency and area per pupil might be considered good averages, although the efficiency ratios shown here fall within the range of previous findings, in an analysis of over 50 schools made some years ago. The validity of the suggested type of criteria appears to be sound and their use worthwhile.

How to "do it yourself" . . . .

How to make your own comparison

School building costs vary, as we have said, from time to time, from region to region within the country, and according to local conditions. These all effect the dollar cost at varying rates, and to compare two schools built at different times in different places without making an adjustment is unfair.

The value of the schools compared is also variable. In one plan there may be an excessive amount of floor area devoted to non-educational purposes, while another plan may be economical in this respect.

These are only a few of the variables. Different people measure buildings differently, too.

The data sheets and tabulations shown here were used in comparing 10 secondary schools as fairly as it is now possible to do. You may follow the same procedure using these forms. However, your results, useful though they may be to you, cannot be said to prove your school is "cheap" or "expensive," in comparison to *all* schools because not enough schools have yet been analyzed in this fashion. The authors would very much appreciate receiving the results of your work when you do make an analysis.

How to use these forms

The Cost and Area Data Form consists of two sheets containing four columns. All the information in the first three columns is essential for the analysis. Column 4, however, contains spaces for information about items which vary greatly. Analysis of these must take a different form; although they, plus Column 3, add up to the total cost of a school, and though they may have effects on other costs (for instance, site conditions may raise or lower general construction costs), they are matters of choice and chance which cannot be reconciled in the same way that the items in Column 3 can.

Columns 1, Gross Area, must be filled in and computed exactly as the instructions read. The "area formula" followed here is that used in New York State. All schools, regardless of location, must be identically measured and computed if the comparison is to be valid.

Column 2, Net Educational Area, includes only the spaces essential to the educational process. Excluded are boiler rooms, wall thicknesses, corridors, toilets, etc., because these are not *educational* spaces, however essential they are to the physical plant and its human functioning.

Column 3, Building Construction Cost, should also include only the items listed. As in all columns, omit any item not pertinent. Make certain that nothing listed in Column 4 appears in Column 3.

The comments called for at the foot of Column 3 will be useful in weighing the results of the analysis. In these may be found some of the reasons for high or low costs.

See page 51 for comparative cost form

HOW TO COMPUTE CORRECTION FACTORS

These correction factors are designed to equalize the differences in costs caused by year of construction, region and local conditions. The three factors are to be selected from those given above, according to the facts in each case, and multiplied together. The results will be an index number. The actual building construction cost is then to be divided by the index, to provide an "adjusted" cost factor which can be fairly compared with other "adjusted" costs.

Unless the adjustment is made, any comparisons would not take into account changes in construction costs—which, though they have not risen as much for schools as for other types of buildings, have shown steady increases since World War II. Costs also vary according to regions—they are generally lower in many southern states, for instance, than in the northern Atlantic seaboard. The immediate locality also affects the costs: in a big city where labor, for example, is highly unionized, costs are usually at maximum levels.

The factors tabulated are derived from reliable sources, with full permission, and from the extensive experience of Engelhardt, Engelhardt, Leggett and Cornell, with school construction in most of the states of the United States. Some slight revisions have recently been made to bring the figures up to date and to take advantage of the statistical checking and rechecking which is constantly in progress. Hence, the figures here given supersede any previously published.

External influences on construction costs represented by three indices.

*TIME	INDEX
1949	1.00
1950	1.07
1951	1.14
1952	1.18
1953	1.23
1954	1.27
1955	1.33
1956	1.395
1957	1.47
1958(April)	1.47

**REGION	INDEX
North. New England	1.06
Northeast	1.33
Middle East	.83
Southeast	.66
Great Lakes	1.15
North Central	1.00
South Central	.86
West	.93
Pacific	1.22

No. New England: Me., N. H., Vt.; **Northeast:** Mass., Conn., R. I., N. Y.,, N. J., Pa., Del.; **Middle East:** Md., D. C., Va., W. Va., Ky., N. C.; **Southeast:** S. C., Tenn., Ga., Ala., Miss., Fla.; **Great Lakes:** Ohio, Mich., Wisc., Ind., Ill.; **North Central:** Minn., N. Dak., S. Dak., Ia., Nebr., Mo., Kan.; **South Central:** Ark., Okla., La., Tex.; **West:** Mont., Id., Wyo., Colo., Utah, N. Mex., Ariz.; **Pacific:** Wash., Ore., Nev., Calif.

TYPE OF COMMUNITY	INDEX
Rural	.90
Suburban	1.00
Metropolitan	1.10

COMPOSITE INDEX
Times x Region x Type

* *Time index* is *Engineering News-Record* Building Cost Index.

** *Regional indices* are developed from average square foot costs of elementary secondary schools from July 1951 to Sept. 1952. Median average: North Central region.

Engelhardt, Engelhardt, Leggett and Cornell
Educational Consultants
221 West 57 Street, New York 19, N.Y.

COST AND AREA DATA

1.

Job Name _____ Location _____ Architects _____

1. GROSS AREA

Total sq ft area of all floors measured to outside faces of enclosing walls, including stairways and developed basement areas, plus one-half total sq ft area of the other areas listed below:

Floor areas (incl. stairs):

Developed basement	_____
First floor	_____
Second floor	_____
Third floor	_____
Additional floors	_____
Porticoes	_____
Bicycle sheds	_____
Porches	_____
Open, covered play areas	_____
Passages	_____
Sheltered bus loading platforms	_____
Subtotal	_____
1/2 subtotal	_____
Total, gross area	_____

2. NET EDUCATIONAL AREA

Total sq ft area (inside dimensions, wall to wall, including cabinet space) of following spaces:

Classroom	_____
Kindergarten	_____
Science laboratory	_____
Commercial education	_____
Home economics	_____
Art	_____
Shop	_____
Band or chorus room	_____
Gymnasium or playroom	_____
Swimming pool	_____
General education laboratory or study hall	_____
Auditorium seating area, stage, stagecraft rooms, dressing rooms - not lobby	_____
Music practice rooms	_____
Cafeteria seating area - not kitchen & auxiliary spaces	_____
Library reading rooms	_____
Gymnasium locker and shower rooms	_____
Administrative offices, health guidance, conference, teachers' work, student organization rooms	_____
Total, net educational area	_____

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Educational Consultants
221 West 57 Street, New York 19, New York

COST AND AREA DATA

2.(R)

Job Name _____ Location _____ Architects _____

Type of School _____ Type of Construction _____ Contract Date _____

3. BUILDING CONSTRUCTION COST

Exclude all costs except:
(Please include nothing listed in column 4)

General construction _____

Plumbing _____

Heating & ventilating _____

Electrical work _____

Cabinet work _____

Painting _____

Elevator _____

Total Building construction cost _____

Total other initial costs (col. 4) _____

GRAND TOTAL _____

COMMENTS:

Construction features: (Design features and special program requirements, etc., strongly affecting cost)

4. OTHER INITIAL COSTS

LAND PURCHASE PRICE _____

SITE DEVELOPMENT

Grading	_____	
Drainage	_____	
Roads	_____	
Paved play areas	_____	
Paved parking	_____	
Athletic fields	_____	
Fencing	_____	
Water supply	_____	
Sewage system	_____	
Electric & gas service	_____	
Outdoor equipment	_____	
Landscaping	_____	
Site subtotal		_____

EQUIPMENT

Auditorium seats	_____	
Bleachers	_____	
Movable partitions	_____	
Draperies	_____	
Stage lighting	_____	
Chairs & desks	_____	
Kitchen & cafeteria	_____	
Special equip: (lab, shop, home ec., phys.ed., etc.)	_____	
Equipment subtotal		_____

PROFESSIONAL FEES

Architect	_____	
Consultant	_____	
Clerk of works	_____	
Engineer	_____	
Other	_____	
Fees subtotal		_____

ADMINISTRATIVE COSTS

Board attorney	_____	
Bond attorney	_____	
Advertising	_____	
Other	_____	
Administrative subtotal		_____

TOTAL OTHER COSTS _____

COMPARATIVE COST DATA FORM

EASY TEAR OUT

A. BUILDING CONSTR. COST (ACTUAL)

General Constr. _____
Plumbing _____
Heat & Vent. _____
Elec. work _____
Cabinet work _____
Painting _____
Elevator _____
TOTAL ACTUAL COST _____

B. COST CORRECTION FACTORS

Time _____
x Region _____
_____
x Type _____
Index _____

Act. Cost(A) / Index(B) _____

C. ADJUSTED COSTS

ADJ. TOTAL _____

D. PUPIL CAPACITY

Type of Space	Units		Cap/unit		Tot. Cap
Classroom	____	x	27	=	_____
Kindergarten (double sessions)	____	x	40	=	_____
Science Lab.	____	x	25	=	_____
Commercial Educ.	____	x	25	=	_____
Home Economics	____	x	25	=	_____
Art	____	x	25	=	_____
Shop	____	x	20	=	_____
Band or Chorus	____	x	35	=	_____
Gym, Playroom	____	x	35	=	_____
with partition	____	x	70	=	_____
Swimming pool	____	x	25	=	_____
Gen'l Educ. Lab or Study Hall	____	x	35	=	_____
TOTAL NO. PUPILS					_____

E. COST/PUPIL

Adj. Total Cost (C) / Total No. Pupils (D) = Adj. Cost per pupil

= _____ = _____

F. COST/GR. SQ. FT.

Adj. Total Cost (C) / Gross Area (1) = Adj. Cost per Gr. Sq. Ft

= _____ = _____

G. COST/NET SQ. FT.

Adj. Total Cost (C) / Net Educ. Area (2) = Adj. Cost per Net Sq. Ft.

= _____ = _____

Comparative cost data form

Item A, Building Construction Cost (actual), is transcribed from Column 3 of the preceding form.

Item B, Cost Correction Factors, is to be filled from the list of factors given on page 48 and multiplied out to obtain an "index figure." The index indicates how the actual cost is to be adjusted to find a cost figure which can be compared.

Item C, Adjusted Costs, is a list of costs on four bases, all of which, because they are "adjusted," can be compared fairly. The first item is the adjusted total cost, which is obtained by dividing the actual total cost by the index found in Item B.

Item D, Pupil Capacity, is a list of teaching stations, each accompanied by a capacity-per-unit-figure. *These capacity figures must be used* in determining the theoretical total pupil capacity of the school. It is neither an ideal nor an attempt to state what a classroom capacity, for instance, should be. The capacities shown are a rough average of those prevalent in a number of schools commonly considered "good," and to this extent reflect good practical usage. If any other figures are used, the comparison will be void.

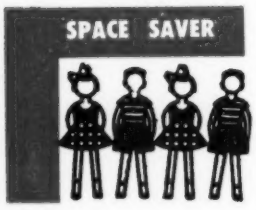
Item E, Cost per Pupil, is the adjusted total cost divided by the (theoretical) pupil capacity.

Item F, Cost per Gross Square Foot, is the adjusted total cost divided by the gross area (from Column 1 of the Cost and Area Form).

Item G, Cost per Net Square Foot, is the adjusted total cost divided by the net educational area (from Column 2 of the Cost and Area Form).

All these adjusted cost figures, E, F, and G, can be used in making fair comparisons. To get the most out of the analysis it is advisable to develop the data thus obtained as indicated in the preceding tabulations. Two or more schools may also be rated, using the chart. **End**

Faced with the twin problems of increased enrollment and no room to expand, Siebert Elementary School in Columbus, Ohio, erected this four-classroom unit on concrete stilts. Classroom shortage is solved and limited playground area preserved.



School on stilts

SCHOOL:

Siebert Elementary School
Columbus, Ohio

ARCHITECT:

David Schackne, Jr.

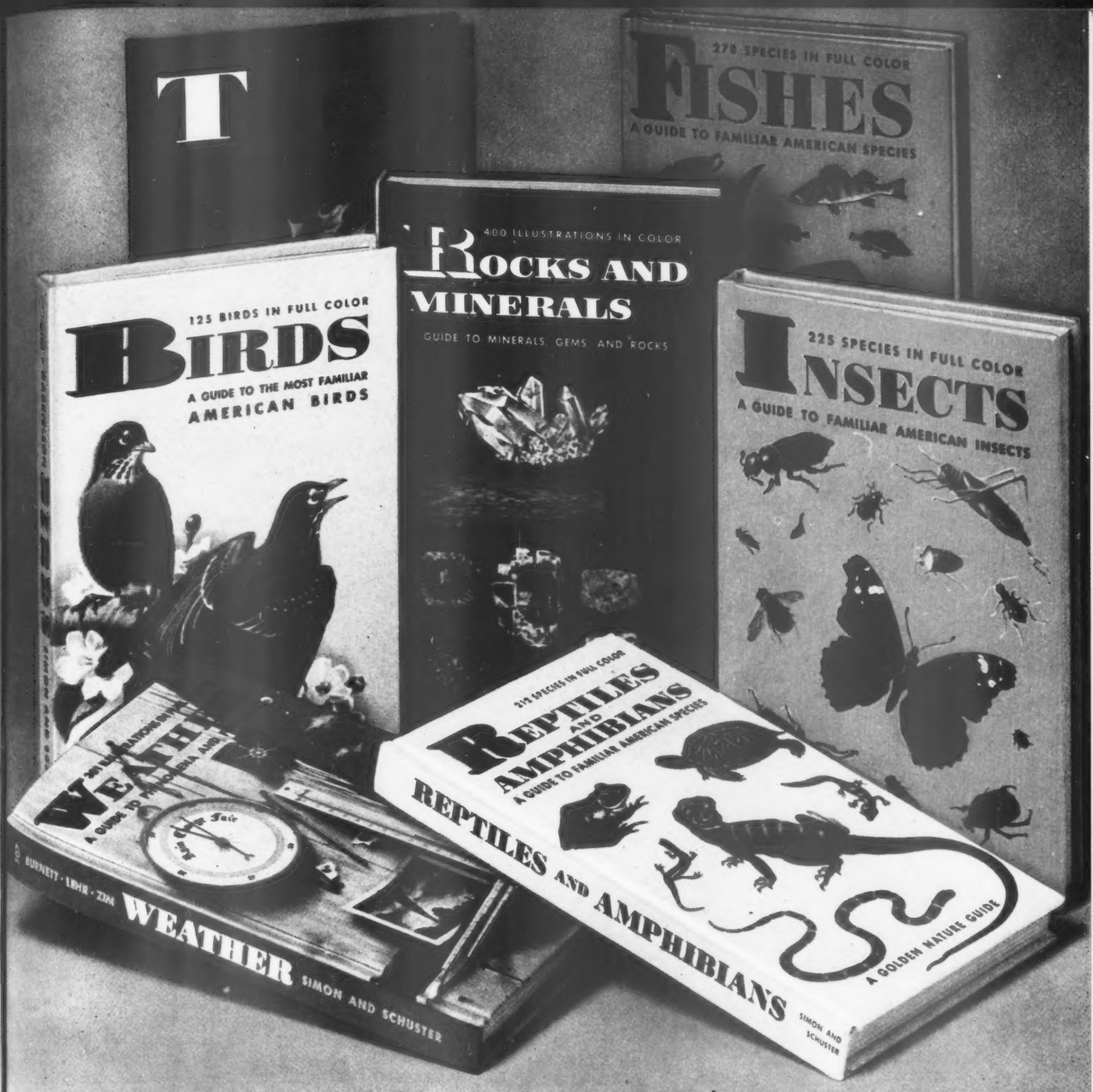
■ ■ ■ Siebert Elementary School, which serves a densely-populated section of Columbus, Ohio, is a 60-year-old, two-story structure surrounded by a playground that is slightly less than adequate in size. Hit last year by an enrollment increase which meant the immediate construction of four new classrooms, Siebert had no room to expand without sacrificing most of its playground. It could have purchased adjoining residential property but this would have made total construction costs prohibitive.

School officials finally solved the problem, with the help of Columbus Architect David Schackne Jr., by erecting the four-classroom unit on stilts, preserving 4,000 square feet of sheltered and unobstructed play area beneath it.

Conveniently enough, the elevated addition connects directly with the first floor of the old school which, as with most older schools, is one floor level above the ground. The new addition also has its own outside stairway.

Built of brick and supported eight feet off the ground by a total of 11 reinforced concrete piers about a foot-and-a-half in diameter, the four-room addition cost the school a total of $80,000, or about $19.80 per square foot, comparable to costs of other school structures in Ohio last year. Schackne says he could reduce the cost by at least $5,000 if he had the job to do over again.

After its first year of occupancy, the school on stilts is "working out much better than anybody could possibly have anticipated," says Principal Eugene Kirby. **End**



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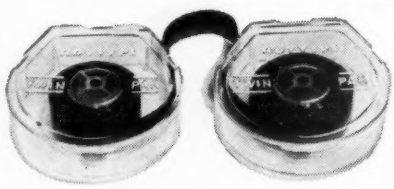

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A new program for MATHEMATICS

Today's scientific world is built on a foundation of mathematics. Too few of our high schools are graduating students adequately prepared to meet it. Here is how one school system is revamping its program to meet the needs of the modern world.

■ ■ ■ What has happened to the study of mathematics in the last 30 years? "Nothing," seems to be the answer if we are to believe our educators who are competent to criticize present methods of teaching math. In the first place, they say, most of our schools are using teaching materials that have hardly been revised since the middle of the 19th Century. Imagine studying from a physics text that pre-dated Darwin! Many of the mathematical works now being used have no more material than texts written before Einstein, before atomic energy, before the launching of Sputnik.

In the second place, some 30 years ago many educators began questioning the program being offered students in the first three grades. They wondered whether it was important to give them arithmetic so early in their school lives when they were having trouble enough learning how to read. Many elementary school teachers, especially those who had difficulty with the subject themselves, heartily endorsed the idea of delaying arithmetic until the third or fourth grade. Thus, where previously a student might learn long division in the third grade, he was now to approach this subject a year or more later.

There might have been no serious quarrel with this new state of affairs had mathematics remained the same throughout the last 30 years. It was still possible for good students to get through the maximum offerings —including trigonometry, advanced algebra and solid geometry—while they were in high school, and advance to calculus in college. But now this is not enough. So much necessary new mathematics has been added to the college and post-college level that students must learn more in high school in order to keep up. What had been sufficient—whether learned in 12 years or 10—will no longer do.

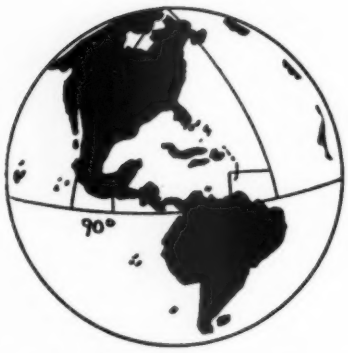
"Forty years ago," a spokesman said, "a college student majoring in mathematics took integral and differential calculus in his senior year. Ten years ago many colleges were offering this course to their freshmen. Today we must make it possible for our high school seniors to study it!"

A third factor must also be considered. Much of the mathematics being taught in schools today is outdated and unimportant. Euclidean geometry, for example, has little meaning in a world of rockets and space satellites. A glance at the longitudinal lines on a globe will quickly disprove the long-accepted theory that there can be no more and no less than 180 degrees in a triangle.

This is not to say that Euclidean geometry, after 2,000 years, is suddenly all wrong. It still has its place but it's a comparatively small place. The student of tomorrow—and the student of today—must be taught much more geometry than his parents ever knew or dreamed of.

A solution

Many experts, working with the Commission on Mathematics of the College Entrance Examination



All the longitudinal lines on the globe meet the equator at right (90°) angles. They also meet one another at the polls. Thus, it is apparent that there are *more* than 180° in the triangles they form.

Board, have agreed on the outline of a program that they have called "modern mathematics."

Basically, the idea of modern mathematics is to shift the current emphasis on technically carrying out arithmetic computations to understanding mathematical concepts. Furthermore, the proponents of modern mathematics say, much deadwood must be rooted out of the present program and new, vital material substituted in its place.

Can this be done? Can such a program of change be carried out? The answer, apparently, is yes. Many school districts are now in the process of re-evaluating their mathematics programs. Several have already instituted some of the changes recommended by the proponents of modern math. Others are still in the looking stage. But some districts have already moved almost wholly into a new way of approaching the subject.

One of these is the West Hempstead system in New York.

"This scientific era," says Mrs. Florence Elder, chairman of the district's math department, "has focused increasing attention on the importance of mathematics. . . . There is a serious lag between the traditional curriculum and modern mathematics. In order to bridge this gap we believe that curriculum revision is indicated:

"Mathematics must be viewed as a unified subject.

"The process of deductive reasoning should be extended.

"Emphasis must be placed upon basic concepts.

"Teachers of mathematics need to be aware of truly modern trends and developments in the teaching of elementary and secondary mathematics.

"At West Hempstead we are working to develop an adequate, up-to-date mathematics curriculum designed to meet the actual needs of each student, the non-college bound as well as the potential scientist.

"We believe that we should have an integrated program of mathematics for West Hempstead students, grades K-12.

"We are seriously studying and evaluating the relative merits of various methods and procedures of teaching mathematics. We believe that:

"1. There is need for increased emphasis on thinking, exploration, generalization and logical reasoning;

"2. The student should become increasingly independent of books and teachers as he develops mathematical maturity;

COURSE OFFERINGS IN MATHEMATICS IN THE WEST HEMPSTEAD

7TH GRADE

Basic program:
7TH GRADE MATHEMATICS: emphasis on the fundamental concepts and processes with remedial work where necessary.
Academic program:
7TH GRADE MATHEMATICS: arithmetic and an introduction to informal geometry, N. Y. State syllabus.
Sequential program:
MATHEMATICS 7: the first in the sequential mathematics courses; more emphasis on a modern approach to the concepts and principles of arithmetic and informal geometry. Recommendation of Guidance Department and Chairman required.
Sequential program for the Gifted:
MATHEMATICS 7-8: more extensive development of Mathematics 7 course with advancement into Mathematics 8 program. Recommendation of Chairman required.

8TH GRADE

Basic program:
8TH GRADE MATHEMATICS: the basic concepts and operations of arithmetic, informal geometry, remedial work where necessary.
Academic program:
8TH GRADE MATHEMATICS: State syllabus in arithmetic, informal geometry, and introductory algebra.
Sequential program:
MATHEMATICS 8: a modern approach to the underlying ideas and principles of arithmetic, informal geometry and elementary algebra. Recommendation of Guidance Department and Chairman required.
Sequential program for the Gifted:
MATHEMATICS 8: completion of Mathematics 8 and continuation into Mathematics 9. Recommendation of Chairman required.

9TH GRADE

Basic program:
BASIC MATHEMATICS 1: arithmetic, informal geometry and an introduction to elementary algebra.
Academic program:
ELEMENTARY ALGEBRA: N. Y. State syllabus. Recommendation of Guidance Department required.
Sequential program:
MATHEMATICS 9: the basic notions of elementary algebra are developed from the point of view of modern mathematics. Recommendation of Guidance Department and Chairman required.
Sequential program for the Gifted:
MATHEMATICS 9-10: completion of Mathematics 9 and much of the Mathematics 10 course; more extensive work in various geometries. Recommendation of Chairman required.

10TH GRADE

Basic program:
BASIC GEOMETRY: informal approach to geometry with emphasis on understanding applications and appreciation. Prerequisite: Elementary Algebra.
Academic program:
10TH YEAR MATHEMATICS: N. Y. State Regents course in plane and coordinate geometry. Prerequisite: Elementary Algebra. Recommendation of Guidance Department required.
Sequential program:
MATHEMATICS 10: the content of the Regents course is covered, and more extensive work in analytic and solid geometry. Prerequisite: Mathematics 9. Recommendation of Guidance Department and Chairman required.
Sequential program for the Gifted:
MATHEMATICS 10-11: completion of Mathematics 10 and possibly Mathematics 11. Recommendation of Chairman required.

11TH GRADE

Basic program:
BASIC MATHEMATICS 2: Fundamentals of arithmetic, elementary algebra and informal geometry.
Academic program:
INTERMEDIATE ALGEBRA (FULL YEAR): Regents course. Prerequisite: 10th year Mathematics.
INTERMEDIATE ALGEBRA (½ YEAR): Regents course*. Prerequisite: 10th year Mathematics.
TRIGONOMETRY (½ YEAR): Regents course*. Prerequisite: 10th year Mathematics.
*Department recommendation required

"3. Mathematical curiosity and creativeness should be encouraged;

"4. The student needs to develop a healthy attitude toward mathematics. Teachers should attempt to dispel the oppression of fears so often associated with mathematics, and to make mathematics a vitalizing adventure."

How West Hempstead does it

Basically, the West Hempstead program works to give all students as much mathematics as they can take. To do this the system's mathematics program has been integrated from elementary through high school. On the lowest level this has been accomplished through in-service training for teachers. In junior high school, students are invited to attend special seminars devoted to "enrichment" work. In high school, able students are placed in honors courses that allow them to take more mathematics than many students get in college. Further, in the high school courses the subject is itself integrated in such a way as to make the study of mathematics one coutinuous experience, rather than a series of isolated incidents.

West Hempstead started to build its new math program four years ago by instituting seminar programs in the junior high school. In order to set up the program, two problems had to be overcome. The students to take part in the seminars had to be identified, and the community—particularly the parents of those involved—had to be convinced to try them out.

Identifying the students was a joint undertaking of classroom teachers, counsellors, school administrators and the chairman of the mathematics department. Students were selected not alone on the basis of grades but from observation, intelligence tests and, sometimes, a "feeling" that they could do the work.

Concerning the community, "you don't wait for problems, you forsee them," says Florence Elder. "We forsaw the possibility of problems with the community so we set out to meet them. First, we told the school board exactly what we were doing and why. The members gave us immediate and whole-hearted support.

"Then we turned to the parents of the students involved. We met with them individually and we held teas to which they were invited in groups. We didn't tell them that we were changing the math program all around or anything like that. We simply told them that we were hoping to give their children an opportunity to go a little deeper into the study of mathematics. Not one parent refused to allow his child to participate."

The new math program was started at the junior high school level for several reasons. Most important was that these are the formative years in a child's life and, in the past, they had been the most discouraging to talented children. "Particularly in math these students were bored," Mrs. Elder says. "They were simply reviewing what they already knew. Instead of studying they were disrupting the classes. Some of the brightest students were failing and at least one that I know of got into some scrapes with the law primarily because the work he was getting in school offered him no challenge."

The junior high school seminar courses do not attempt to cover the same ground as the regular classes. Instead, they are designed to arouse the curiosity of the students so that they will look for answers to questions that are bothering them.

For example, the number system we use is based on tens, (the decimal system). Out of the first year's seminar, a whole series of number systems written to different bases was developed, and one student discovered an easy way to convert figures from one system to another. The fact that these number systems have no application at the moment is unimportant. The thought that went into discovering and developing them is important.

The seminars are held on a very high level. Each class is confined to 15 students. They are warned that they must never boast of their seminar work, must make no announcement of it to their classmates and must never carry seminar discussions back to the classroom. These rules have been strictly adhered to in order to avoid any appearance of an *elite* class or to cause embarrassment for other teachers, themselves not ready to cope with the material covered in the seminars.

The first seminar classes were conducted on an experimental basis and there was some question as to whether the students were capable of taking such advanced work or were interested in doing it. These questions were answered at the end of the year when the students—all of whom had completed the course—begged to have it continued into the next year.

"It was the first time that anything in school had ever really interested me" one of the seminar members recalled recently. "The course was a real challenge. It gave me something to do and it gave me a reason to do it."

Although all concerned at West Hempstead are agreed that the junior high school years are the key ones in the development of their students, they are not

JUNIOR-SENIOR HIGH SCHOOL PROGRAM

Sequential program:
MATHEMATICS 11: modern integrated course in intermediate algebra, trigonometry, analytic geometry, and statistics. Prerequisite: Mathematics 10. Recommendation of Guidance Department and Chairman required.
Sequential program for the Gifted:
MATHEMATICS 11-12: completion of the sequential courses Math 11 and Math 12, and a modern development of the ideas of analysis.

12TH GRADE

Academic program:
TRIGONOMETRY (FULL YEAR): Regents course in trigonometry and an introduction to descriptive statistics. Prerequisite: Intermediate Algebra.
ADVANCED ALGEBRA (½ YEAR): Regents course*. Prerequisite: Intermediate Algebra/Trigonometry.
SOLID GEOMETRY (½ YEAR): Regents course*. Prerequisite: Intermediate Algebra/Trig.
Sequential program:
MATHEMATICS 12: modern approach to a study of our number system, advanced algebra, analytic geometry and spatial geometry. Prerequisite: Mathematics 11.*
PROBABILITY AND STATISTICAL INFERENCE (½ YEAR)*.
ELEMENTARY CALCULUS (½ YEAR)*.
Sequential program for the Gifted:
ELEMENTARY CALCULUS (FULL YEAR)*.
TOPICS IN MODERN ALGEBRA (FULL YEAR)*.
*Recommendation of Chairman required.

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satisfied to confine their advanced mathematics work to this short period.

Almost immediately they discovered that too many students were reaching junior high school with inadequate arithmetic preparation. This was, in large part, traced back directly to the elementary school teachers. "It wasn't that they didn't want to teach or couldn't," says Mrs. Elder. "They just didn't have the tools or the background in the subject. Many of them had had little mathematics themselves and a few just didn't like the subject and let the students know it."

It is unusual for elementary and high school teachers to work together on a project of this type, but at West Hempstead they did. High school faculty members presented three in-service courses for the elementary teachers. They explained what the high school and junior high school courses were intended to accomplish. They went over some fundamentals of teaching arithmetic. Most important of all, they showed that mathematics could be fun, not only to teachers and students of the subject but to any intelligent person. "We couldn't completely overcome their lack of mathematics training," Mrs. Elder admitted, "but we could overcome their 'hate' of the subject."

As a result of the in-service courses, and because the enthusiasm of the math department was transmitted in part to the elementary school teachers, the West Hempstead students have been approaching the seventh grade these past two years with a much better foundation in arithmetic than ever before.

"Now we're getting students who are really ready for advanced work," Mrs. Elder says. "It's a pleasure to work with them. And the credit must go to the elementary teachers. They're doing a wonderful job."

High school honors

With an elementary school program turning out students with a better basis in arithmetic, and junior high school seminars designed to spur the best students into new discoveries in mathematics, the West Hempstead district was ready to take its final step: introduction of an advanced math program into high school.

Under the previous program, two levels of mathematics had been taught in the high school. One, for non-college students, had steered its way through ninth and 10th grade basic mathematics including elementary algebra and plane geometry. There it terminated.

The other covered adequately the basic college-preparatory courses outlined by the New York State Board of School Regents. This meant running through elementary algebra in the ninth grade; plane geometry the next year; intermediate algebra and, sometimes, trigonometry, in the 11th grade and finishing up in the senior year with advanced algebra and solid geometry.

These courses, somewhat modified, along with a ninth-grade remedial arithmetic class, are still offered to West Hempstead students. But, in addition, those who want it, and can get departmental approval, are being given the opportunity to take what the district has termed its new "sequential course in mathematics." (This sequential work is now being brought into the seventh and eighth grades, too.)

Actually this course of study is subdivided into two sections—one, specifically for the gifted, moving at a slightly faster pace than the other. The courses are labeled "sequential" because they attempt to break

through the artificial barriers that have been erected in the past to separate algebra from geometry, geometry from trigonometry, and trigonometry from algebra.

At West Hempstead these are all considered part of the same study—the study of modern mathematics.

In the ninth grade sequential course students are given a basic notion of elementary algebra from the point of view of modern mathematics. This includes the introduction of the concept of "sets," basic to the teaching of the new program. The concept is just what it sounds like—considering everything as part of a set. Thus, the table, the rug, the chair and the lamp in a room can be members of a set. Any particular set can be defined simply by specifying those things which are its members. Mathematically, for instance, we could define a set as all the natural numbers whose square is less than 100. By definition, this set would be made up of the integers one through nine.

The regular sequential course in the 10th grade covers plane geometry and adds an extensive section of coordinate and solid geometry.

A modern integrated course in intermediate algebra, trigonometry, analytic geometry and descriptive statistics is presented in the 11th grade.

Students in the special class for the gifted move through the same material during these three years, but at a faster rate. By the end of their junior year they complete the normal 12th grade work and commence to study a modern development of the ideas of analysis. Thus in the 11th grade these students are actually getting material not usually provided in high school, while students in the regular sequential class have almost completed all the work usually presented in the senior year.

The final year in the sequential program covers a modern approach to our number system, advanced algebra, analytic geometry and spatial geometry. In addition students are offered the opportunity to study probability and statistical inference and elementary calculus, each for a half a year.

For the gifted students of mathematics the offerings are even more advanced. They have the opportunity to take a full year of calculus, reserved by many colleges for their sophomores, and a full year's course titled "Topics in Modern Algebra."

What students told SM

How about the students taking these advanced courses. Are they the traditional "grinds" who have no activities but study all through school? A SCHOOL MANAGEMENT editor, bothered by this question, was invited to meet the West Hempstead class in elementary calculus.

The 21 students included 19 seniors and two lower classmen who, because of their high mathematical ability, had been allowed to take this advanced course. Of the 19 seniors, two were members of the first-string basketball team; several others participated on the varsity level in football, baseball and track. The editors of the school paper and the senior yearbook were in attendance. Each of the seniors was involved in a major way in the extracurricular life of the school. Taken as a whole they formed the most popular, best looking and best rounded group of students in the high school.

A majority of the boys in the class were interested in careers in science or engineering. Several others,

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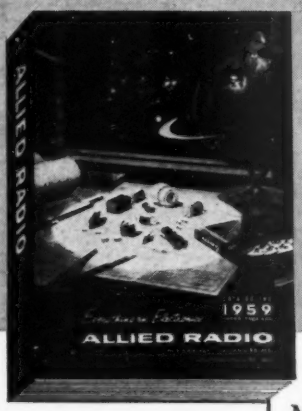

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however, and most of the girls, would not use this math to any great extent in the future. Nevertheless they were subjecting themselves to a college-level course.

The students—somewhat reluctantly—gave up a class period to answer questions put to them by the editor. Why, for example, are they struggling through such a difficult course when there are so many easier ones they could elect?

"The main reason I like this class," a pre-engineering student said, "is because of the difference in teaching. Everything is informal. It's as if Mrs. Elder is studying right along with us, learning new things."

"We're responsible for our own learning," a girl who wants to teach said.

Discovery and detour were the key words to another student, a boy who probably never again will study mathematics. "In this class," he said, "the teacher is always willing to take some time to detour into matters that perhaps weren't in the original lesson. We're really studying in depth. Sometimes it's like we're discovering a new math."

The general consensus of the class was summed up by one girl who had had to struggle for parental permission to take the course. "My parents didn't think I should take it," she explained. "They didn't see what good it was going to do me. But I think I'm getting a lot out of it. The work is interesting, so it doesn't seem hard. And our teachers really know what they're talking about. Maybe what I'm learning now won't ever be useful to me, but just learning about it—knowing that such things exist in the world—is wonderful."

"It's great," a basketball player said. "It's the most fun I've ever had in school. No, I don't wish I had more time for dancing or talking with the other kids. I've still got plenty of time for that. But this, this is fun, real fun. And it's especially nice with this kind of a teacher."

How about the new concept of sets? Is it hard to understand? "I wish we had known about sets earlier," the potential teacher said. "They're applicable to everything. I know I would have had a much easier time with algebra if I'd been taught about sets."

There are problems

Problems do exist in West Hempstead's program. It is in an experimental stage and changes are being made each year. Still, after three years of full operation the administration and staff are convinced that the new way of teaching can work. "The students are ready and willing to take the courses and here at West Hempstead we have a group of teachers capable of handling the toughest subjects. That puts us over the first big hurdle," says Superintendent Homer Smith in reviewing the program.

What are the problems still to be solved? "We still need more good teachers, particularly at the lower grade levels," Mrs. Elder says. "But more important, we need new textbooks that will recognize that mathematics has changed in the last 50 years.

"That's our main difficulty now. The textbook manufacturers seem to be afraid to try anything new. So they stick to the same old stuff year after year. There isn't an adequate high school text in print now for the courses we're teaching.

"We've had to use three or four texts in each class

and, even then much of our work is from mimeographed sheets we prepare ourselves. If the textbook people would only help us, I think we could improve the mathematics teaching in this country very quickly.

"We have found here that average students are able to take the advanced courses. Our sequential courses have influenced all our classes, not just those for the better students. I think we're proving that high school students—all of them—are ready for a much tougher brand of math than they've been getting.

"You know, one of the most difficult problems we've had is holding our students back. I'm constantly getting complaints from other teachers who say they can't get so and so to do his homework on time but they catch him doing math in the middle of *their* classes. Of course, we can't have our students disrupting other classes or ignoring other work to do mathematics. But I think it gives you an idea of the enthusiasm our students have for the kind of math program we're presenting.

"Let me make just one last point. Any school can do what we've done. All it takes is a little common sense and some hard work. You've got to move slowly. You've got to show the community what you're doing and convince the parents that it's right. You've got to get the kids on your side and you have to build a group of teachers who can handle the material. But if you move slowly, a step at a time, it's not too hard.

"I think, too, that the teachers must bear this in mind. We must be humble enough to realize that these students will be better than us. We've got to give them a chance to surpass us." **End**

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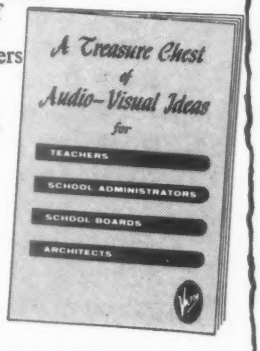

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FP-5

(Circle number 711 for more information)

Purchasing textbooks

continued from page 30

top policy-making in our Federal government. The chief officers in our government are laymen. They listen to the experts in the Air Force and the Navy and the Army, and then they make their own decisions. I would say that the superintendent or the school board should expect a teachers' committee to study the problem of selection and make some recommendations. Then I have complete confidence in the school board's being able to evaluate those recommendations. At the meeting of the National School Board Association in Miami this year almost 4,000 school board members met to discuss the school curriculum. They know a lot more about the curriculum than people think they know.

Q You're suggesting that teachers should make the basic selections—maybe offer some alternatives? How would you select the specific teachers who should be on a selection committee?

MCCAFFREY: We have published a pamphlet on that question. In it we say that we think small committees are much more effective than large ones. We think that a committee of five to seven teachers is the most desirable. Beyond that, let's assume we were selecting mathematics books for the junior high school. I would think that it would be ideal to have one elementary mathematics teacher and one secondary math teacher, plus four or five of the junior high school mathematics teachers. You would try to reflect different types of educational background and different types of experience. Naturally, you would try to select the most competent people.

Q: In other words, they should not necessarily be the teachers who have been longest in the system?

MCCAFFREY: That would be a very great disservice. I think they might not reflect the new kind of teaching that is taking place in the colleges. On the other hand, there is an important place for their wisdom and their experience. You would try to get a cross section on a committee. And you would try to get teachers who had the time to do this thing right.

Q: In other words, a highly competent teacher with a heavy teaching load might conceivably be omitted?

MCCAFFREY: Right. Or you could relieve the teacher of part of his or her teaching load. However, so many appointments have been made to committees in the past, and then no provision made for giving them adequate time, that I'd be wary. One good method is to give a fully loaded teacher a substitute one day a week. It's important for the committee to sit down in daylight hours.

Q: Do you believe that other members of the faculty, not on the committee, should know which teachers are making the selection?

MCCAFFREY: Definitely. I am against any kind of secret committee or deliberations. These people should be publicly announced. The teachers should know that the study is going on. That way, if they have any ideas to contribute, they have an opportunity to transmit them at least in writing.

Q: Could you suggest how much time should be given to a teacher who was appointed to a committee?

MCCAFFREY: It all depends upon the assignment. If it's a matter of selecting a French book, for example, it could probably be done in four or five meetings. However, an elementary reading series might well extend over a six month period. In that case, the administration should arrange for released time for the teacher for as many as eight or ten days.

Q Should a school board and an administrator expect a written report from a selection committee, or would you suggest a meeting between them for discussion?

MCCAFFREY: I think that the superintendent of schools should be the person to transmit the recommendations to the board. That is his responsibility. I think the committee chairman should report to the superintendent.

Q: How much lead time is needed to select a textbook?

MCCAFFREY: Let's assume the community is going to adopt a reading series. They would probably appoint a committee in the fall after school is opened—let's say in late October. That committee would meet and set up its procedures. Mem-

"School board members know a lot more about the curriculum than people think they know."

bers would contact all the publishers and arrange to see their representatives in some systematic way. They might even want to see the representatives twice. They should be in a position to reach some kind of conclusion just before budget time. In that way, selection would be made in late spring and the orders would be placed in late April or early May for delivery early in July.

Q: In other words, the new books should actually be delivered before the school year ends, or just as it ends?

MCCAFFREY: That's right. It gives the schools an opportunity to stamp the books and distribute them and made them available for immediate use.

Q I'd like to go back to this matter of the school board's participating in the selection of textbooks. Since you feel so strongly about that, Dr. McCaffrey, how do you feel about the idea of a citizens' group being appointed to work with the board and the administration on textbook selection?

MCCAFFREY: I believe very strongly in citizen participation in school affairs, but I think that this can be carried too far. Supposedly, the community has selected its best people for the school board and it has given them the responsibility to make its decisions and reflect its opinions.

Q: There has been a lot of uninvited attention paid to textbook selection by certain citizen groups. This usually happens in the social studies. Would you like to comment on this?

MCCAFFREY: This happens quite often when books are old and out-of-date and don't reflect changes in the foreign policy of our government. In those cases, a citizens' group might have a valid criticism. But when a group comes in because it disagrees with whether socialized medicine should be mentioned, in a textbook or something like that, then it is up to the school board to stand firm in saying that it is the objective of education to present all.

Q: Earlier in this interview you mentioned "taking an inventory" as one of the first steps in evaluating a district's textbooks. Do you mean a simple count of books on hand?

MCCAFFREY: There is only one accurate method of determining a school district's budgetary needs—and it is a hard way. First, you must determine the curriculum needs for each pupil in each grade for textbooks and printed materials of instruction. Then you count the useable books for each grade, and determine how many useable and non-obsolete books are now in your inventory, and discard the worn-out or useless books. Then your enrollment figures are projected by grade level. If each pupil is to be supplied with a complete set of the books required by your curriculum, you can then tell how many of each type of book will be called for. Finally, book by book, you measure what is the difference between what is on hand and useable and what is needed.

Q Would you follow the same formula on teaching aids other than textbooks? Workbooks, for example?

MCCAFFREY: Yes. Publishers no longer publish textbooks solely. They publish a vast array of instructional materials. The last five years have seen a tremendous change and growth in the making of textbooks. Glance at a text with a copyright of 1950 or 1951 and compare it with a 1957 or 1958 textbook. Much of this change has evolved through the need for presenting a unified program for teaching, and one of the biggest single areas of development has been the teachers' manuals. In many cases, they are practically a course in teaching techniques. Source books, workbooks, experiment books, tests, film strips and records all tie in with most basic textbooks. Incidentally, publishers are doing a great service for new and inexperienced teachers, with these teaching aids. Some publishers are even publishing professional teaching technique books to accompany a series of textbooks. **End**

HOW TO SELECT JUNIOR LIBRARY BOOKS

Wise spending for supplementary reading means selecting the right library books for each school situation. Teachers and librarians therefore need an opportunity to see and examine, to become acquainted at first hand with, the many excellent books coming from publishers' presses each year—books which very often prove to be indispensable teaching tools besides. To meet this need a service called "Books on Exhibit" was organized six years ago. Today it is operating in some 35 states, working primarily with state education departments and state libraries. Through these agencies, week-long book exhibits are scheduled in city and county school systems where an attendance of 150 or more teachers and librarians can be expected. (During the summer, exhibits are scheduled for in-service courses at colleges and universities.)

By securing a place on the state exhibiting schedule (which runs from November through May) a school system acquires the opportunity, without fee or obligation, to examine at leisure a complete, representative, and organized collection of 600 new library books for grades Kindergarten through High School. Each year's collection presents the new books published by 27 leading publishers. Copies of a graded, annotated, indexed catalogue are available free for distribution to administrators, teachers, and librarians attending the exhibit. All the books are protected with jackets, and each is numbered to conform with a number in the catalogue so that viewers of the exhibit can quickly find the books they want most to see. *The exhibits are not unaccompanied, and Books on Exhibit neither solicits nor accepts orders.* Exhibitors' only cost is the small charge of shipping the books to the next exhibitor in the state.

Necessarily, of course, exhibit schedules are established well in advance. Those wishing information about their state program should write to Books on Exhibit, 43 Main St., Irvington, N. Y.

IBM ANNOUNCES

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IBM DATA PROCESSING

Win an election

continued from page 34

ored for suburban areas with specialized interests in the bond issue.

4. Posters.

Some 200 were placed in store windows. As with other literature designed for display or distribution by merchants, they were "non-political" in that they did not urge a "yes" vote. Sample message: "Vote for Good Schools June 3rd."

5. Stamped postcards.

About 5,000 were printed because individuals and groups had made enthusiastic use of them as last-minute reminders during the '57 campaign. However, postcards did not prove as popular this year and only half the stock was used.

6. Shopping bag stuffers or bill inserts.

Approximately 100,000 of these were accepted by local businessmen and tucked into shopping bags or added to bills.

7. Milk-bottle collars.

Two local dairies attached 7,500 tabs on home-delivered milk during the two days immediately preceding the election.

8. Metered messages on envelopes.

The largest department store and the telephone company stamped their bill envelopes with this message: "Vote as you please, but vote—School Bonds June 3."

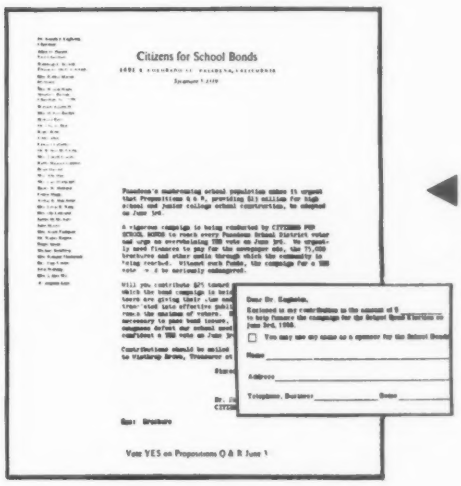
The individual who contacted merchants on the several items above made most of his calls a month or six weeks before the election. He says more time should have been allowed, especially when asking for cooperation on bill enclosures.

9. Newspaper ads.

A series of ads, no more than two to a newspaper, ran a few days before the election in the Pasadena and suburban community newspapers. These included, in very small type, the names of 900 individuals who had endorsed the bond issue.

Warns one politically-wise veteran of both Pasadena campaigns: "Remember that once

THEY SENT LETTERS. . .



Citizens for School Bonds

Vote YES on Propositions Q & R June 3

◀ asking for funds

Appeal for funds used a letterhead with list of influential business and professional sponsors.

May 28, 1958

Dear Friend,

Prop. 2 is urgently needed to complete Pasadena High School, to enlarge John Muir High School and to accomplish the needed rehabilitation of several junior high schools. Its failure to pass would mean not simply overcrowded classrooms, but, we believe, a serious threat to the quality of education now being offered.

Proposition 3 will allow Pasadena City College to meet its many building needs at no cost to the local taxpayer. New state legislation involving payments for out-of-district students will provide the funds for the retirement of these bonds.

We urge you to vote YES on propositions Q and R next Tuesday, June 3, and to ask your many friends to do the same.

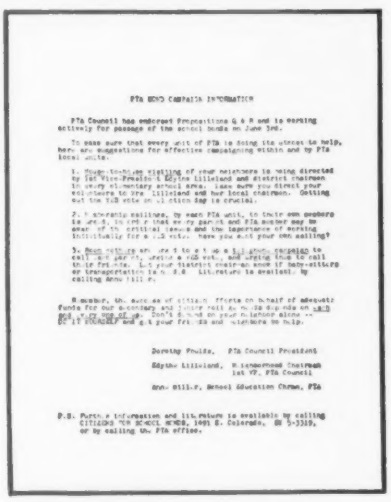
Sincerely,

Rev. Dan Towler
Rev. George Train
Rev. Curtis Peach
Rev. H. Hylton Sanders
Rev. T. Bryant Proctor
Rev. Randall Trott
Rev. Arvid Carlson
Rev. Chase Little
Rev. Will Hildebrand
Rev. F. A. H. Stevens
Rev. Ernest R. Becker

(partial list)

◀ showing church support

A strong appeal for support at the polls was mailed over the signatures of leading clergymen of all faiths.



PTA BOND Campaign INFORMATION

PTA Council has endorsed Propositions Q & R and is working actively for passage of the school bonds on June 3rd.

To make sure that every unit of PTA is doing its utmost to help, here are suggestions for effective campaigning within and by PTA local units:

1. House-to-house visiting of your neighbors is being directed by 1st Vice-President Edythe Lilliland and district chairmen in every elementary school area. Make sure you direct your volunteers to Mrs. Lilliland and her local chairmen. Getting out the full vote on all three bonds is crucial.

2. In each polling unit, by each PTA unit, in their own members is urged that every parent and PTA member may be aware of the critical issues and the importance of voting individually for a full vote. Have you cast your own ballot?

3. Those voting on June 3 to whom transportation is a problem are urged to call the PTA office, phone a ride each, and urging them to call their precinct chairman know if baby-sitters or transportation is a problem. Literature is available by calling Arno Hill P.

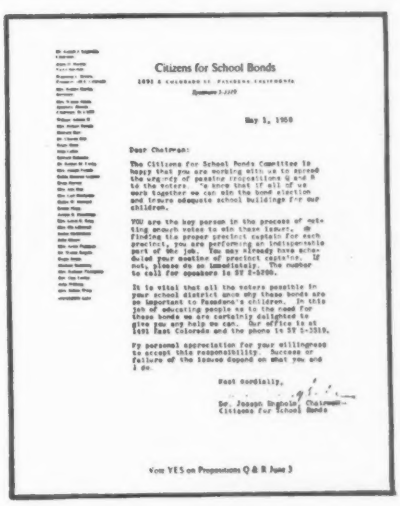
Remember, the success of citizen efforts on behalf of adequate funds for our elementary and junior high schools depends on you! And you can help us. Don't depend on your neighbor alone -- DO IT YOURSELF and get your friends and neighbors to help.

Dorothy Poulin, PTA Council President
Edythe Lilliland, Neighborhood Chairman
1st VP, PTA Council
Arno Hill P, School Education Chmn, PTA

P.S. Further information and literature is available by calling Citizens for School Bonds, 1691 E. Colorado, RY 5-3319, or by calling the PTA office.

▲ to PTA members

The PTA played a major role in getting out the vote, using its existing organization.



Citizens for School Bonds

May 5, 1958

Dear Chairman:

The Citizens for School Bonds Committee is happy that you are working with us to spread the urgency of passing Propositions Q and R to the voters. We know that if all of us work together we can win the bond election and insure adequate school buildings for our children.

YOU are the key person in the process of getting enough votes to win these issues. By finding the proper precinct captain for each precinct, you are performing an indispensable part of the job. You may already have achieved your position of precinct captain. If not, please do so immediately. The number to call for speakers is RY 5-3200.

It is vital that all the voters possible in your school district know why these bonds are so important to Pasadena's children. In this job of educating people as to the need for these bonds we are certainly delighted to give you any help we can. Our office is at 1691 East Colorado and the phone is RY 5-3319.

My personal appreciation for your willingness to accept this responsibility. Success or failure of the issues depend on what you and I do.

Most cordially,

Dr. Joseph Dystole, Chairman
Citizens for School Bonds

Vote YES on Propositions Q & R June 3

◀ as a follow-up

District chairmen were urged to keep tabs on precinct captains through mailings from overall chairman.

you have solicited an individual's sponsorship you must use his name or lose his friendship."

10. Adhesive-backed automobile bumper strips, windshield stickers and billboard advertising were planned but not used because funds ran out.

Financing the campaign

Incidentally, the action groups' expenditures were in the neighborhood of $3,000. It is hard to estimate the total cost of the campaign because so many services and facilities were donated. The office space used by the action group, for example, was loaned by the Pasadena teachers' association.

Another economy resulted from the action group's care not to duplicate activities of other pro-school groups in the community.

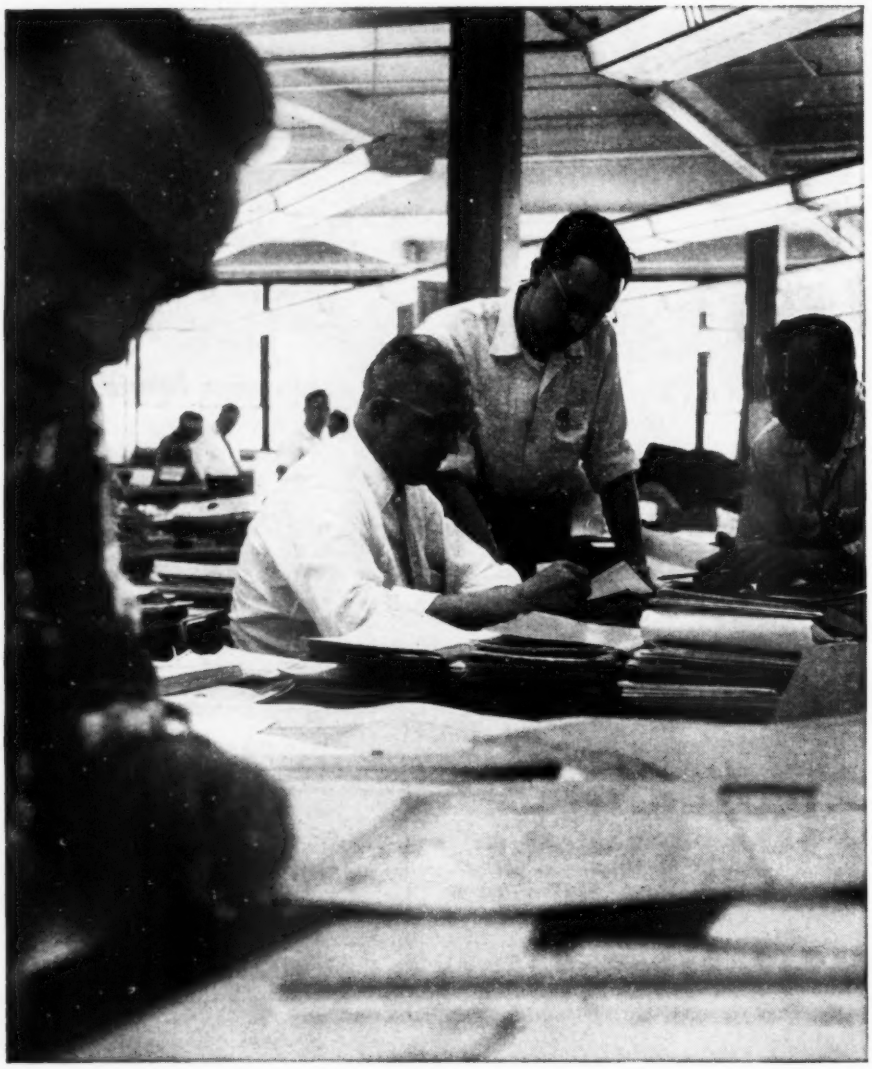
The PTA, for instance, distributed flyers and set up displays at school open houses in April; sent letters to its membership through their own school units; and urged room mothers to set up a telephone campaign to remind voters to go to the polls.

The League of Women Voters has traditionally supplied Pasadena organizations with well-trained speakers on the occasion of any election involving issues rather than candidates. They did so again this year, accepting such additions to their own staff as volunteers from the Toastmaster's (public speaking) Club. The citizens' action group often scheduled the speakers, but a member of the league-trained speaker's bureau made the speech. District captains in the precinct organization also drew heavily on the speaker's bureau.

There were 72 speakers on the roster. They made 108 speeches to groups ranging from 10 to 1,000 persons. The talks were illustrated with charts and displays.

The league also wrote and published 2,000 copies of a pamphlet which described the organizational structure of the schools and explained school financing. The citizens' action group obtained copies for limited general distribution.

The Committee on Public Education (COPE), a large and long-established pro-school group which concentrates on research and dissemination of information, published a 12-page booklet recapitu-



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lating the recent history of the school building program, related it to the curriculum and explained in detail the issues both directly and indirectly at stake in the campaign. Material was included on topics that it was expected the bond-opposition group would dwell on.

In addition to the 4,000 copies that went to COPE's own mailing list, an extra 3,000 were ordered by the citizens' action group and distributed to precinct workers and others.

The Pasadena and suburban press gave good coverage to bond issue news. So did the local radio stations, one of which specializes in programs for the sizable number of Mexican-Americans in the community. For them, the action group taped special school bond messages in Spanish.

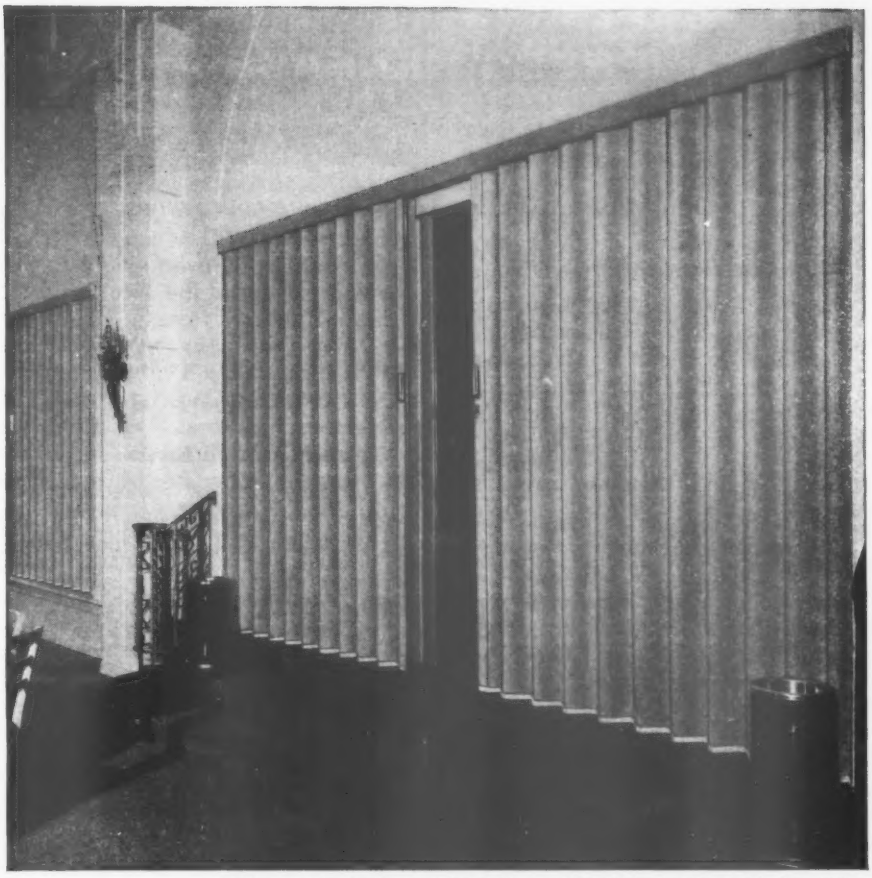
In the '58 campaign, no last-minute smear literature of consequence appeared—probably because literature of this type had backfired on those who issued it in the course of the last two elections. An anonymous group calling itself The Committee Against Waste and Mismanagement issued a statement, but its circulation was so limited and it was so hard to read that it had no discernible effect.

One school board member began the campaign by disavowing the bond proposals, and a citizen popularly regarded as his spokesman made numerous anti-bond speeches and statements. But as the campaign progressed and the pro-school group kept hammering away at the facts, the opposition died away to a murmur.

Whether controversy harmful to the schools has been eliminated in Pasadena is a moot point. Despite the almost 44,000 yes votes in the '58 campaign, one cannot overlook the fact that there were over 16,000 opposed—or that the total turnout was only 65% of the city's registered voters.

"An action group like ours cannot and should not organize itself on a permanent basis," remarks a weary veteran of the '57 and '58 campaigns.

"I hope it won't be needed again. I don't think it will be—if educators and citizens' groups now concentrate on getting the facts about the schools into every home, on a year 'round basis." **End**



Ballroom, Empire Room, Dover Room—Hotel Monica, Santa Monica, Calif.
Contractor & Designer—Joseph Illig & Sons—Los Angeles

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PRESS RELEASES

News from the business firms serving your schools

Wax has vinyl content

A new floor wax with vinyl content, which combines slip-proofing, a clear-film gloss, and resistance to water-spotting has been introduced by Armstrong Cork Co. According to the manufacturer, the new liquid wax is a result of intensive research devoted to the development of a floor treatment that will not darken, discolor, or yellow with age. It is recommended for use on all kinds of resilient flooring, including linoleum, asphalt tile, vinyl-plastic tile, cork tile, rubber tile, and vinyl-asbestos tile. It can also be used on wooden floors.

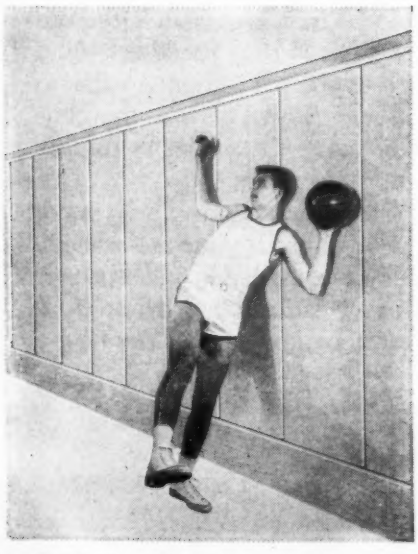
The spreadability factor is 2,000-3,000 square feet per gallon. It can be removed from the floor, when desired, with common household detergents.

For more information on this product, please circle number 890 on the Reader Service Card.

■ ■ ■

Safety padding for gyms

An improved wall padding for use in gyms, playrooms and other areas where wall crash accidents to students are frequent, has recently been announced. The new material is built up from a heavy cushion of polyurethane foam, fastened to a strong plywood back and covered with vinyl-coated fabric. It can be easily installed over



unfinished walls and no maintenance except an occasional wiping with a damp cloth is necessary.

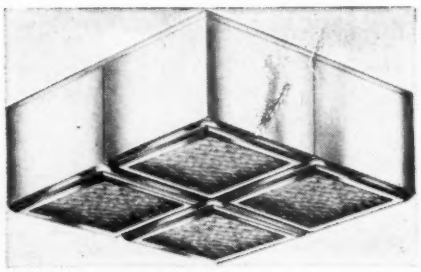
The material, called Safe-Wal, manufactured by Medart Products, Inc., is available in two-foot wide panels and in heights of five feet, five feet six inches, and six feet.

For more information on this product, please circle number 900 on the Reader Service Card.

■ ■ ■

Gymnasium fixtures

A new line of incandescent and mercury-vapor lamp fixtures for use in gymnasiums and auditoriums has been



announced by the Edwin F. Guth Co. They are designed primarily to serve the lighting requirements of multi-purpose gymnasiums and will accommodate numerous variations in lighting intensities. All of the reflector units are formed of aluminum.

For more information on these products, please circle number 897 on the Reader Service Card.

■ ■ ■

Powder eliminates odors

A new granular powder, Quik-San, is said to completely neutralize obnoxious lavatory odors by chemical absorption. Unlike other types of deodorants which are designed to mask unpleasant smells, this product is said to absorb odor particles. It contains no hard acids, thus minimizing maintenance. It is said to have the additional property of bleaching out even the most stubborn stains and discolorations.

For more information on this product, please circle number 901 on the Reader Service Card.

■ ■ ■

Book truck very compact

A compact, new book truck featuring 18 feet of shelving is announced by Smith System Manufacturing Company, of Minneapolis. The new double-sided truck makes it possible for one person to transport safely 18 feet of books anywhere desired, although the truck itself measures only 36 inches

long, 18 inches wide and 43 inches high. There are six shelves, three on each side of the unit. It is equipped with a tubular steel handle and moves easily on large, five-inch, ball bearing casters, two swivel and two fixed. The price f.o.b. Minneapolis is $55.00.

For more information on this product please circle number 903 on the Re vice Card.

■ ■ ■

Blackboard in wall

A blackboard which is actually an integral part of the wall offers construction savings of up to 30 cents per square foot, according to the manufacturer, Waterproofing Materials Co. of Fort Worth, Tex.

The new finish, called Plawall, may be applied over any masonry wall or plaster in either new construction or for remodeling. The blackboard area is actually a very dense and hard finished coat of a special plaster. The surface is harder and denser than slate or any type of pressed board. The balance of the wall may be finished in texture or smooth finish as desired.

For more information on this product, please circle number 894 on the Reader Service Card.

■ ■ ■

Portable electric scoreboard

A portable electric scoreboard, which needs no installation, has been announced by the M. D. Brown Co. Called the Sportsmaster, it is 24.5 inches long, 10.5 inches high and five inches deep. It weighs 16 pounds.

The manufacturers point out that it

can be used satisfactorily as a supplement to large boards, particularly for basketball, to register individual and cumulative team fouls.

As an accessory, a timer with an eight inch dial to register time elapsed and time left to play is available. It is equipped with buzzer and rapid reset and may be used independently if desired.

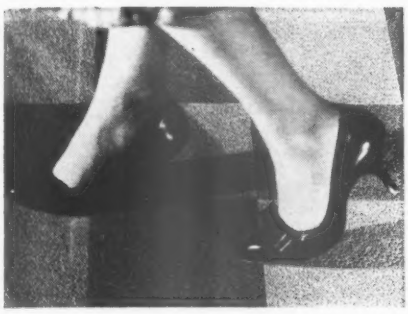
For more information on this product, please circle number 899 on the Reader Service Card.

■ ■ ■

Non-slip floor covering

Silent safety for schools is available in a new, resilient floor covering offering a non-slip textured surface in three colors.

Called "Scotch-Tred," the material has the additional advantage of being spark-proof and flame resistant, long-



wearing and resistant to chemicals, paints and solvents. It is pressure-sensitive for easy application.

The material is flexible enough to be used on stairs in a continuous strip and is particularly recommended for areas where children are in danger of slipping and falling. Produced by Minnesota Mining & Manfacturing Co., it is sold nationally in a variety of shapes and sizes.

For a free sample and additional information, please circle number 898 on the Reader Service Card.

■ ■ ■

Three-dimensional map

Several new maps have been announced by the Hammond Map Co., including a full-colored raised relief map. The new map is printed in nine colors on latex bonded stock and shows the relief pattern of the United States. Special shadow effects highlight valleys. It measures 21 x 29 inches and sells for $4.95. It is also available with a natural wood frame at $8.95.

The company has also announced a new "Handy Star Finder and Planet Table" which, by means of a revolving disc, shows the principal stars visible at any hour of the year in the Northern Hemisphere. In effect, it is a revolving map of the heavens. Price is $1.00.

For more information on these products, please circle number 893 on the Reader Service Card.

Floor scrubbing machines

A broad line of new floor and scrubbing machines has recently been announced by Multi-Clean Products, Inc., of St. Paul, Minn. Among the new features provided are dual controls to give the operator fingertip control with either hand, big wheels to facilitate pulling the machine up or down stairs, bumpers which encircle both top and bottom of the machine, a recessed hand grip in front of the machine to aid in lifting, and a recessed twist lock connector for cable.

The machines are available with brush spreads of 14, 16, 19 and 22 inches. A 3.5 gallon solution tank and controls can be added to transform the units into scrubbing machines.

For more information on this product, please circle number 892 on the Reader Service Card.

■ ■ ■

Collator for schools

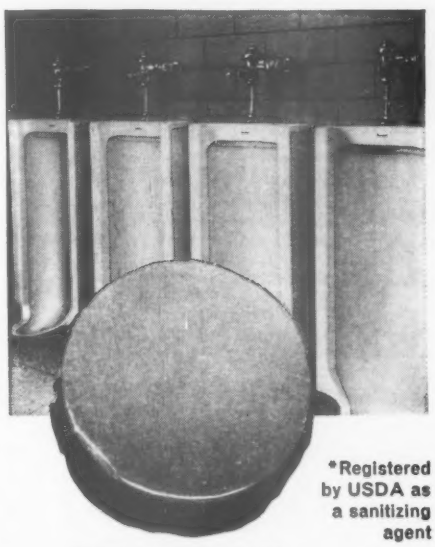
For schools faced with the problem of collating duplicated material into sets, Thomas Collators Inc., is introducing a new low-cost desk-top, portable electric six-sheet collator. An economical, widely-needed office tool which will retail at $149.50, the new model brings efficient, time-saving collating in many school offices and duplicating departments which do not need the capacity of the larger, more expensive standard office collators. The new desk-top model is the first of its size and price available in an electric model. It will find wide usefulness in collating sets of instruction material,

programs, schedules, agendas, tests and examinations and many other duplicated documents.

This collator will gather 120 sheets or 20 sets of six sheets each per minute. Burred feed rollers assure positive contact with every sheet and minimize double sheet movement. The machine will collate paper weights and finishes including most tissue, onionskin, one-time carbon, bond, mimeo and ⅛" cardboard.

For more information on this product circle number 881 on the Reader Service Card.

AMAZING NEW BLOCKETTES for urinals



*Registered by USDA as a sanitizing agent

DESTROY ODORS CHEMICALLY

Guaranteed more effective than perfumed blockettes

Here is a new way to neutralize smelly, organic matter in urinals. When moisture hits the blockette, an anti-bacterial chemical vapor is released that deodorizes and sanitizes by an immediate, almost total chemical destruction of bacteria. *Tests show 94.4% bacterial count reduction. You must be satisfied or your money will be refunded.

See the Man Behind the Drum . . . your Huntington representative for full details. Ask him for a sample of Odor Bar Blockettes.

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FOLDING
BANQUET
TABLES

Direct Prices and Discounts to Schools, Churches, Clubs, Lodges and All Organizations

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TRUCKS FOR FOLDING TABLES

Monroe TS (transport - storage) Trucks make handling and storing of Folding Tables easy and quick. Combination offers.

STEEL FOLDING CHAIRS

Monroe Steel Folding Chairs in attractive range of styles, sizes and prices. Excel in comfort, easy handling and durability. Also full line of non-folding chairs, desks and combinations for classroom, cafeteria and church school use.

PORTABLE PARTITIONS

Monroe's new movable partitions change idle space into useful areas. Smooth Masonite panels, tubular steel frames. Swivel pedestals, casters or glides.

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227 of the most reputable Audio-Visual dealers recommend Beseler's VU-LYTE II Opaque Projector!

AV Experts are in a position to know. Find out how YOUR School can improve the teaching process. Write for the new Free brochure: "Turn Teaching Into Learning"

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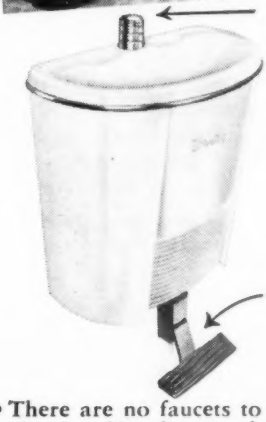
For the smaller washroom

BRADLEY Duo Washfountains

Foot-Control of water from sprayhead eliminates faucets.

Space for two means more facilities in less space.



• There are no faucets to manipulate or maintain. No chance of infectious contacts. The Health Dept. of an Eastern city now requires foot-controlled washing facilities in rest-rooms of establishments where food products are handled as in meat and food markets, restaurants, cafeterias, etc . . . Bradley Duo-Washfountains are available in stainless steel and vitreous enamel, described in Bulletin K-1204. Copy mailed on request. BRADLEY WASHFOUNTAIN CO., 2343 W. Michigan St., Milwaukee 1, Wisconsin.

Write for New Bulletin K-1204

BRADLEY Duo Washfountains

Distributed Through Plumbing Wholesalers

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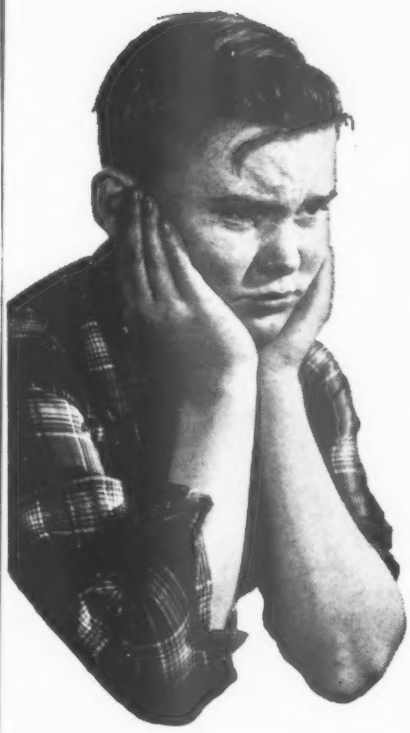

Problem Child or...Hearing Problem Child?

2 Children in every classroom have Hearing Defects

Five to 7 percent of the pupils in any school have hearing defects which require special attention. In the average school room of 35, therefore, about 2 pupils have hearing defects. Student failures and repeated grades can cause teacher dissatisfaction, often resulting in teacher turnover. You can easily find out if the "dull" child is just a child who can't hear. The cost of setting up a hearing test program is less than the cost of one child repeating a grade. It's easy to start a hearing test program and to recommend steps to overcome the hearing handicap.

Now You Can...

Test up to 40 students

AT ONE TIME WITH

Maico MA-2 Multiple Hearing Test AUDIOMETER

So Easy To Carry
from classroom to classroom

Your school nurse can easily test the hearing of groups or individuals on this Maico precision Audiometer . . . an ideal instrument to accurately locate hard of hearing pupils in a group testing program.

Lightweight and Portable

Small, compact, lightweight, the MA-2 Audiometer is easy to carry.
Sturdy carrying case absorbs normal shocks of transportation.

Write for booklet "Why & How To Conduct School Hearing Tests."

Maico

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Minneapolis, Minn.

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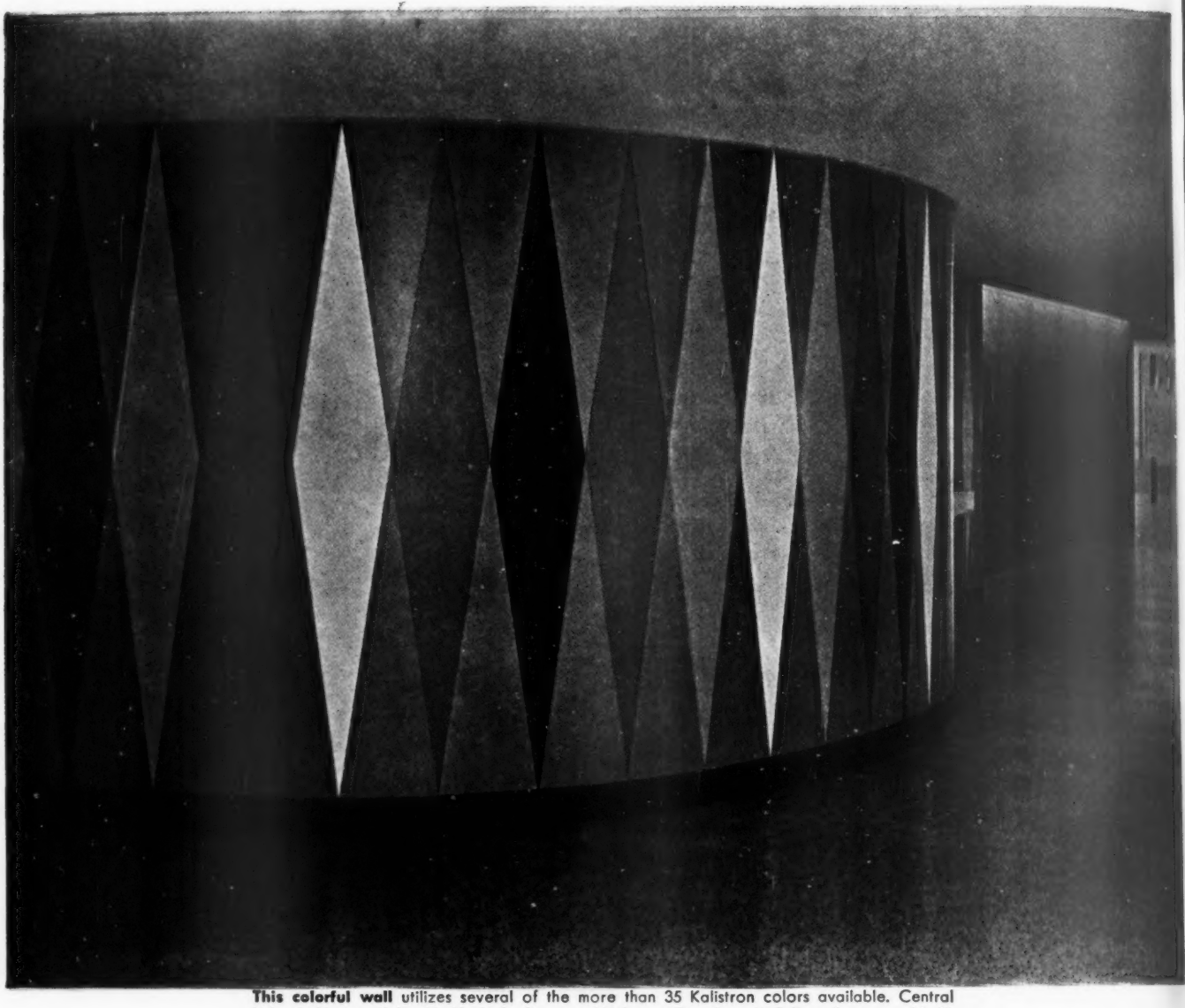

This colorful wall utilizes several of the more than 35 Kalistron colors available. Central School, Hudson Falls, N. Y. Arch: Sargent, Webster, Crenshaw & Folley, Syracuse, N. Y.

Kalistron wall covering gives you color you can scrub clean but can't scrub off!

THE beauty of Kalistron is more than skin-deep. Because of its unique "color guard" construction—color fused to the *underside* of a tough transparent vinyl sheet—scuffs and wear can't mar its beauty. Dirt can't either. Ordinary smudges melt away in mild soap and water. Even if you have to scrub stubborn dirt with a brush, colorful Kalistron keeps its fresh new look indefinitely.

Keeps maintenance costs down, too. Walls never need to be painted when they're covered with Kalistron. It's easy to clean, won't chip or peel, and is stain-, fire-, and fade-resistant.

Your decorating opportunities are virtually unlimited with Kalistron. You can select from a wide range of Kalistron colors and textures for installation on any hard, smooth wall surface—flat, curved, even post forming areas. Kalistron vinyl upholstery is also available.

For areas not subjected to extremely heavy wear, use richly textured new Weldwood Tapistron® vinyl-coated fabric wall covering. Comes in distinctive fabric-like patterns and a wide range of decorator colors.

FOR FREE FULL-COLOR DESCRIPTIVE BOOKLET . . .
with photographs showing Kalistron installations, and the name of the Kalistron distributor in your area, write United States Plywood Corporation, Flexible Materials Division, Box 85, Shelby Station, 2921 S. Floyd Street, Louisville 17, Ky.

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